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Open Hearings Start Jan. 4 on Industry's Code

Nema Refrigeration Group Will Submit Proposals On Trade Practices

WASHINGTON, D. C.—The code of fair competition for the electric refrigeration industry, which is supplemental to the basic code of the National Electrical Manufacturers Association, will be brought before the National Recovery Administration at public hearings Thursday, Jan. 4.

Hearings will be held in the auditorium of the Department of Commerce building.

Main purpose of the hearings will be the consideration of amendments to the basic code of the electrical industry which are being submitted by Nema as the code authority. It is understood that the amendments propose changes in the labor provisions and "open price" section of the present code.

The electric refrigeration industry code will be presented by the code committee of the Refrigeration Division of Nema, which includes Howard E. Blood, Norge Corp., chairman; W. F. Armstrong, Frigidaire Corp.; and Thomas Evans, Merchant & Evans Co.

Sales Gain Reported By General Electric

CLEVELAND—Sales of General Electric refrigerators during 1933 showed an increase of 30 per cent over those of 1932, according to P. B. Zimmerman, manager of the company's electric refrigeration and specialty appliance sales departments.

"June was our best sales month this year, whereas, as a rule, we reach our peak somewhat earlier," he states. "For the first time, October sales were better than September's. In December we did the best final month's business in our history.

"A year ago we were cautioning our distributors to reduce their operations. Now we are calling on them to increase their advertising and sales budgets. Our campaign for 1934 will carry the theme of the 'Ten Best Home Servants.'

"During this past year, domestic and commercial refrigeration sales increased in all sections of the country. Southern distributors, however, reported the greatest increases."

General Electric's sales in household appliances now amount to approximately half of the company's total volume of business, says Mr. Zimmerman.

Method of Financing Retail Code Is Given

WASHINGTON, D. C.—Regulations for financing the operation of the National Retail Code Authority, for the award of the Blue Eagle to members of the retail trade, and provisions for financing local code authorities, have been made public by the National Recovery Administration.

An annual assessment to be paid by the retailer of 25 cents for each local retail employe is provided for the expenses of the National Retail Trade Authority. Local Retail Code Authorities are permitted to levy additional funds for their local expenses, not exceeding a total of $1 a year all told for each local worker.

Each proprietor is required to report the number of workers in his establishment or his establishments.

(Concluded on Page 4, Column 3)

Bristol Co. Establishes Canadian Subsidiary

WATERBURY, Conn.—To serve the Canadian market, a new company—the Bristol Co. of Canada, Ltd.—has been organized by the Bristol Co., manufacturer of recording, indicating, and control instruments here. The new organization's manufacturing, sales, and service activities will be conducted at 64 Princess St., Toronto, Ont. J. S. Mayberry, for 10 years connected with the parent company, is manager of the new concern.

Commercial Case Industry Code Approved

WASHINGTON, D. C.—The code of fair competition for the commercial refrigerator industry has been approved by President Roosevelt and became effective Monday, Jan. 1, according to information released by the National Recovery Administration.

All known manufacturers of commercial refrigerators have been notified of an industry meeting to be held Jan. 12 at the Bismarck hotel in Chicago, at which time full instructions as to the operation of the code will be given by Assistant Deputy Administrator William Lawson.

At this meeting it will also be the duty of the manufacturers to elect a Code Authority of seven members to govern the operation of the code.

The industry meeting will be held under the auspices of the Commercial Refrigerator Manufacturers Association, of which E. L. Stultz, Viking Refrigerators, Inc., is chairman of the directors. Other directors are: E. E. McCray, McCray Refrigerator Corp., vice chairman; C. V. Hill, Jr., C. V. Hill & Co., Inc., treasurer; J. I. Holcomb, Holcomb & Hoke Co., director; W. C. Whitcher, The "Dry-Kold" Co., director.

While a copy of the code as finally approved has not yet been made available, it is understood that the trade practice provisions are substantially the same as those proposed in the code submitted by the Commercial

(Concluded on Page 2, Column 2)

Wholesale Meetings Begun by Kelvinator

DETROIT, Jan. 3.—Wholesale men from Kelvinator distributorships in the Detroit area are here today for the first of a series of meetings to be held by factory officials to inform these representatives of products and plans for 1934.

Vance C. Woodcox, advertising director, and J. A. Harlan, commercial sales manager, are in charge of the Detroit meeting, after which they will meet with wholesale men in the Chicago, Kansas City, Dallas, and Atlanta territories.

A similar meeting is being held today in Pittsburgh, in charge of R. I. Petrie, sales manager, and A. H. Reinach, manager of distributor commercial sales. These men will also hold meetings in Philadelphia, Boston, and New York City.

Kelvinator will make formal announcement of its 1934 line of domestic and commercial electric refrigeration lines in several weeks, according to Mr. Woodcox.

New Price List Is Effective on Frigidaire Line

Small Domestic Unit Sells For $109; Commercial Prices Up 10%

DAYTON, Jan. 2.—Price increases ranging from $4 to $44 on Frigidaire household models went into effect today, according to H. W. Newell, Frigidaire Corp.'s vice president in charge of sales. The company's last household boost was made Oct. 9, 1933. Prices on Frigidaire commercial machines were increased approximately 10 per cent on Dec. 20.

Following are the old and new prices on household models (installed, exclusive of freight):

Model Number	Old Price	New Price
Standard 43	$105	$109
Standard 63	153	165
SL-63	165	203
SL-73	213	237
Super 43	167	185
Super 63	211	234
Super 73	248	261
Super 93	284	290
Super 123	348	362
Super 153	437	452
WT-18	459	503

Miss Peacock Heads Home Service Dept.

DETROIT—Appointment of Pauline Peacock as director of Kelvin Kitchen, research and administrative center of the home economics activities of Kelvinator Corp., has been announced by Vance C. Woodcox, director of advertising and sales promotion.

Miss Peacock, who has been a member of the Kelvinator home economics staff for the past two years, is a graduate of Iowa State college. She left college to take a position as head of the home economics department of the All Saints girls' preparatory school in Sioux Falls, S. D.

Leaving All Saints school, she became head of the home economics department of Sunset Hill school for girls in Kansas City. Marshall Field & Co. brought Miss Peacock to Chicago as stylist in the firm's household linens department and later she became educational director of the Ice Cream Institute of Chicago.

Coincident with Miss Peacock's appointment, the facilities of the Kelvin Kitchen have been enlarged to permit the carrying on of more extensive work in refrigeration and food research. The permanent kitchen staff

(Concluded on Page 2, Column 5)

American Injector Introduces New Valve

(See Sectional Drawing on Page 4)

DETROIT—A new automatic expansion valve, featured by a full floating mechanism, is being introduced by the American Injector Co. of this city. H. B. Trix, president of the firm, points out that the new mechanism consists of a bell crank, supported in the center by two bearings, with an adjustable bellows element actuating the bell crank through a ball joint. The other side of the bell crank supports the valve needle in a swivel joint.

Purpose of floating design is to avoid the friction and possible sticking of sliding stems or guides, Mr. Trix explains, and to eliminate any irregular performance due to cocking of the bellows' spring. The bellows is provided with two concentric springs, opposing each other so that the valve will operate on either a vacuum or pressure.

For sulphur dioxide the valve is provided with a Stellite needle and a stainless steel seat. For methyl chloride the valve has a Hastelloy needle and a Monel metal seat. A range of standard connections are available for both inlet and outlet.

The refrigerant enters the valve through a 100-mesh screen and passes down against the valve needle. Adjustments are made by a screw on one end; this is furnished in two styles: with a thumb-nut covered with a rubber cap, or with a slotted screw and a metal cap.

Designer of the valve is E. R. DeLuiz, refrigeration engineer for the company, who was formerly connected with Kelvinator, Copeland, and the Wayne Pump & Tank Co. of Ft. Wayne, Ind. Movement of the needle is about five thousandths of an inch, and of the bell crank about one thousandth of an inch, Mr. DeLuiz states.

25 Contest Winners Chosen by Kelvinator

DETROIT—Names of winners in its Christmas letter-writing contest were announced by Kelvinator Corp. here last week.

Mrs. David Leigh Neary, Torrington, Conn., who won first prize, chose a deluxe 23-cu. ft. model for writing the best letter on "Why I Want a Kelvinator for Christmas." Installation was made by Rackliffe Brothers, Kelvinator distributor in New Britain.

The other 24 prize winners, all of whom received R-42 models are:

Mrs. Nan Sandy, Fairmont, W. Va.; Leone Carder Madden, Bismarck, N. D.; Mrs. John Shook, Memphis, Tenn.;

(Concluded on Page 4, Column 3)

TVA Has Plans For Marketing Of Appliances

Federal Agency Will Aid Dealers in Financing 'Price Line' Sales

WASHINGTON, D. C.—People of the Tennessee Valley, comprising all or part of the seven states of Alabama, Georgia, Kentucky, Mississippi, North Carolina, Tennessee, and Virginia are to have cheaper electrical appliances as well as cheap electricity under a new plan announced Dec. 19 by President Roosevelt.

The President issued an executive order creating the Electric Home and Farm Authority, Inc., as a subsidiary of the Tennessee Valley Authority, and having the powers and functions of a mortgage-loan company, for the purpose of financing the extensive purchase by individuals of appliances that will make use of greater quantities of electrical energy.

Appliance makers are said to have agreed to furnish a standard low price line which will be handled by regular dealers and the privately-owned utility companies. Dealers and utilities will discount instalment paper with the EH&FA. The Reconstruction Finance Corp. will then guarantee the paper up to $10,000,000 and EH&FA will rediscount it with local banks.

The plan was forecast Nov. 10 by David E. Lilienthal, one of the directors of the Tennessee Valley Authority, in an address made at Atlanta. A summary of this address was printed in the Nov. 15 issue of ELECTRIC REFRIGERATION NEWS.

The new corporation, the President's order provides, is to have a capital of $1,000,000, which will be furnished from the public works fund of $3,300,000,000. The governing body will consist of three directors, and the President designated the present directors of the TVA. They are Arthur E. Morgan, chairman; Harcourt A. Morgan, and Mr. Lilienthal.

Mr. Lilienthal and the general solicitor of the TVA, William A. Sutherland, last week held a series of conferences with a special committee of manufacturers appointed by the National Electrical Manufacturers Asso-

(Concluded on Page 2, Column 4)

Utility Code Hearing Opens on January 11

WASHINGTON, D. C.—An investigation of the electric power resources of the United States for the purpose of projecting a 10-year plan for the efficient and economical utilization of such resources in the interests of the people of this country is proposed in a code for the electric light and power industry submitted to the National Recovery Administration by the Edison Electric Institute.

Public hearings on the code will begin Jan. 11.

The code provides for the voluntary acceptance of its provisions by publicly-owned electric plants, with a further stipulation that a private plant shall be exempted from compliance when it is in direct competition with a publicly-owned plant which does not adhere to the code.

The code authority to administer the agreement would consist of 12 persons representing members of the Edison Electric Institute, non-members, and publicly-owned plants subscribing to

(Concluded on Page 2, Column 2)

York System Installed In Fur Storage Vault

BEAUMONT, Tex.—A complete new Freon refrigerating system with dry coils has been installed for Gore & Wolf Co. here by the York Ice Machinery Corp. to maintain low temperatures needed to preserve furs.

The system was installed in a specially protected room, 16 ft. wide, by 22 ft. 3 in. long, by 13 ft. 2 in. high, and an ante-room measuring 4 by 5 by 7 ft. high. These rooms were insulated by corkboard 4 in. thick, laid on concrete, with a maple floor top; also around the 13-in. brick walls of the room and on the fireproof ceiling.

These two rooms were fitted with metal-clad and steel vault doors, and

(Concluded on Page 2, Column 1)

Owen D. Young Kindles a Fire

Owen D. Young, chairman of the board of the General Electric Co., calmly lights his pipe before beginning his radio address dedicating the General Electric Institute. This picture, like every other photograph in the editorial columns of this issue, was taken by the editor in ordinary interior light—no flashes or floodlights.

York Installs Units To Cool Fur Vaults

(Concluded from Page 1, Column 5)

since the rooms were to be air conditioned, windows were entirely eliminated. Thus the rooms were made fireproof, dust-proof, and moisture-proof.

A York Freon refrigerating machine of the self-contained, automatic type operating a York floor-type air-conditioning unit, with a capacity of 2,000 cu. ft. of air per minute, was installed in the fur vault room at the center of the end wall. Coils are flooded by an automatic float control mechanism.

A uniform temperature of 38 to 40° F. is maintained in the fur storage room, and humidity is kept at proper relation to room temperature by automatic suction pressure, so that the proper degree of dryness in the atmosphere of the room is maintained under all conditions and at all times.

Forced circulation of cool, dry air is obtained by a fan, which has a capacity of 2,000 cu. ft. of air per minute. The entire equipment is under automatic thermostat control.

Coils may be "defrosted," as is occasionally necessary, by simply stopping the refrigerating machine and allowing the fan to continue to operate. The apparatus is noiseless in operation, and because of its thermostat control, requires practically no attention.

This combined air-conditioning and refrigerating system will be operated the year 'round. Owners of expensive furs and other garments who take them to this plant for storage need have no fear for their safety.

By reason of the safety features incorporated in this new system, the Gore & Wolf Co. were able to secure low rates of insurance, and they are offering to their patrons a guarantee against damage by fire or water, as well as by tornado or lightning, theft or hold-up.

Commercial Refrigeration Industry Code Gets Final Approval

(Concluded from Page 1, Column 2)

Refrigerator Manufacturers' Association, these provisions having been printed in the Sept. 13 issue of ELECTRIC REFRIGERATION NEWS.

According to the official NRA report, the code establishes a maximum workweek of 40 hours, with 48 hours permitted in not more than eight weeks during any six months' period to allow for seasonal peaks. Firemen and watchmen are permitted to work not more than 48 hours per week; and truck drivers, installation and repair men are allowed a tolerance of 10 per cent over the 40-hour maximum. Time and one-half pay is established for all hours in excess of the specified maximums.

The minimum wage is set at 40 cents per hour, with a differential of 37½ cents per hour in the South. Clerical and office employes will receive a flat minimum of $15 per week, while learners (not to exceed 5 per cent of total workers) may be paid a wage of 32 cents per hour.

The NRA estimates that the code will create employment 14.2 per cent greater than the 1931 level for the industry. The minimum wage stipulated is 5½ cents higher than the average wage now paid, according to NRA officials.

Utilities Seek Inquiry On Power Resources

(Concluded from Page 1, Column 5)

the code, and from one to three non-voting members to be appointed by the administrator.

One of the immediate responsibilities of the code authority would be the designation of seven of its members to serve on a proposed coordination committee, which would also include seven members representing publicly-owned plants to be chosen at a conference which it is suggested President Roosevelt should call to meet in Washington. Part of the code states that:

"The President is requested to invite the representatives of all of the publicly-operated enterprises in the industry, including Federal, State, and Municipal, to participate in a conference to be held in Washington at the earliest convenient date for the purpose of (a) cooperating in the establishment and maintenance of desirable standards of industrial relations and fair competition in the industry, and (b) naming seven persons as truly representative of such publicly-owned enterprises to serve on the coordination committee."

Coe at G-E Ceremonies

Charles Francis (Socker) Coe, author, advertising agency head, and orator, daintily lifts a tidbit while listening to a bit of repartee.

TVA Plans Marketing Of Cheap Appliances

(Concluded from Page 1, Column 5)

ciation. This committee included representatives of some of the principal makers of electrical appliances, and the purpose of the conferences was to undertake the formulation of plans for the operation of the new federal agency.

Will Seek Lower Rates

In addition to financing purchases of appliances and undertaking to reduce the cost of such articles to prospective users, the corporation will endeavor to secure reductions in electric rates of private and public utilities in the Tennessee Valley to the end that wider use of power will result.

The program was explained by Mr. Lilienthal as follows:

"The objective of this program is a wider and greatly increased use of electricity in the homes and on the farms in the seven states of the Tennessee Valley. In order to carry out the program there must be a broad-scale distribution of very low cost standard-quality electric-using appliances, and concurrently a revision downward of electric rates.

Cooperative Program

"The new agency is based on a cooperative program in which the Federal government, the electric utilities both publicly and privately owned, the electric manufacturing industry, and electrical dealers will participate.

"It is proposed that the Electric Home and Farm Authority, Inc., participate in the program in the following ways:

"1. By assisting in financing the consumer in purchasing standard electric equipment at very low prices.

"2. By securing reductions in electric rates, by agreement with the utilities, publicly and privately owned, so as to make use of this equipment feasible for the average householder and farmer.

"3. By engaging in educational work and research to further lower the cost of electric equipment, and to make it better adapted to the needs of the average home and farm.

No Disruption of Outlets

"Electrical appliances are now sold by regular dealers for the manufacturers, by hardware and department stores, and by electric utilities.

"The program does not contemplate a disruption of these outlets. Each dealer will, of course, continue to exhibit and sell any lines of electrical appliances he desires, but he will also have an opportunity to sell the low-priced appliances which this program is expected to create. The program will stimulate the dealers' general business."

Domestic consumers of electricity in the seven states of the Tennessee River Basin in 1932 numbered 1,192,626 out of a total of 19,285,560 in the United States, according to a compilation just issued by the Bureau of the Census.

Electricity Consumption

These consumers used 764,045,078 kilowatt hours of current in 1932, out of the total for the United States of 11,790,139,511 kilowatt hours. The average consumption per customer for the entire country was 611 kilowatt hours, while the average in the Tennessee Valley States was larger except in two cases. The average consumption in these states was: Alabama, 695; Georgia, 749; Kentucky, 506; Mississippi, 644; North Carolina, 660; Tennessee, 595; and Virginia, 686.

The average rate per kilowatt hour for domestic service throughout the United States was 5.5 cents. These states paid average rates as follows: Alabama, 5.3 cents; Georgia, 5.4; Kentucky, 6.2; Mississippi, 6.6; North Carolina, 5.8; Tennessee, 6.2; and Virginia, 5.6 cents.

Pauline Peacock Heads Kelvin Kitchen Activity

(Concluded from Page 1, Column 3)

is being enlarged considerably, according to Mr. Woodcox.

Under Miss Peacock's direction the Kelvin Kitchen field force of home economists is being doubled. This organization will devote the major portion of its time to holding cooking schools, training director home economists, and setting up home economics departments for Kelvinator distributors.

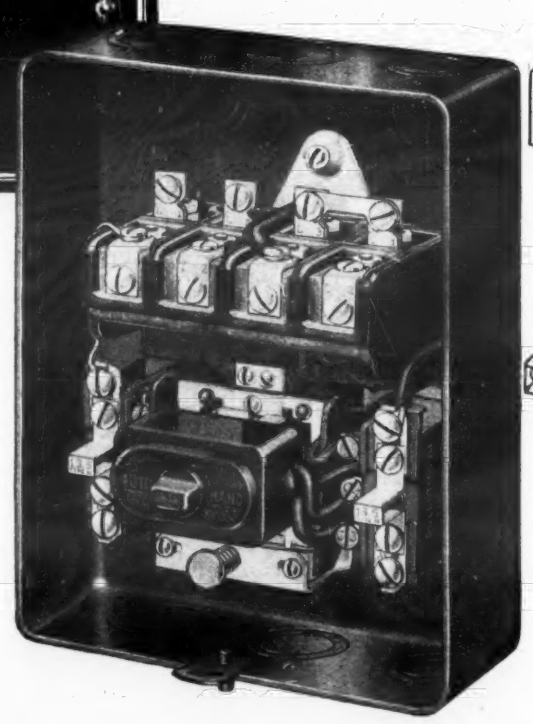
Kelvin Kitchen carries on a constant program of food and refrigeration research. One of its important functions is the study of the relationship between modern electric refrigeration and efficient home management. Kelvinator's new products never go out into the field without first receiving the Kelvin Kitchen's O.K. of practicability.

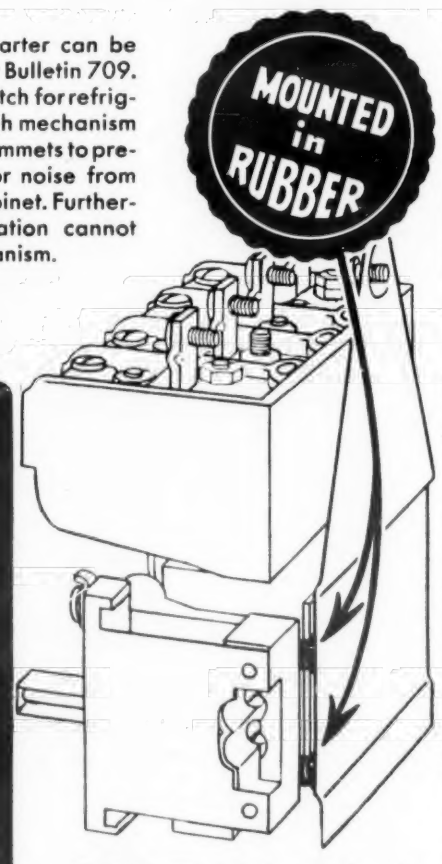
New recipes and hints for the modern housewife are prepared in the Kelvin Kitchen and distributed to Kelvinator owners and customers.

It's New!

this NOISELESS A.C. AUTOMATIC STARTER

Quiet! No automatic starter can be more quiet than the new Bulletin 709. It is the ideal starting switch for refrigeration service. The switch mechanism is mounted in rubber grommets to prevent the slightest hum or noise from reaching the switch cabinet. Furthermore, compressor vibration cannot reach the starter mechanism.





The Bulletin 709 automatic starter is made in two forms especially for refrigeration service; Form 2 is used with two-wire pilot devices; Form 3 has a lever switch to permit manual operation if the automatic pilot device should fail.

BULLETIN 709

SOLENOID-OPERATED ACROSS-THE-LINE A.C. STARTING SWITCH

POLYPHASE RATINGS
3 H.P. - - 110 Volts
5 H.P. - - 220 Volts
7½ H.P., 440-550 Volts

The new Bulletin 709 is the most compact starter available for refrigeration service. Yet its tremendous switching capacity enables it to interrupt motor currents within its rating under any service condition. There are no trouble-making bearings, no flexible shunts, no bulky arc barriers, no slate or molded panels. All starter parts are cadmium-plated to resist rust and corrosion. There is ample wiring room.

The solenoid construction—a new idea in small automatic starters—disposes of noisy clapper contacts. The new Allen-Bradley mechanism is almost entirely enclosed in a remarkable arc hood that muffles contact noise. Write for Bulletin 709. Use the handy coupon!

ALLEN-BRADLEY

ALLEN-BRADLEY CO.
1313 S. First Street, Milwaukee, Wis.

We certainly want to know more about the noiseless Bulletin 709 starter — the new starter with the rubber grommet mounting.

Name .....

Address .....

NOW Ready for 1934

Copeland Commercial Units

in capacities from 100 to 2375 lbs. I.M.E.

18 Models

FOR EVERY PURPOSE

Valuable franchises available—Write for particulars

COPELAND REFRIGERATION CORP., Mt. Clemens, Mich.

Copeland

DEPENDABLE ELECTRIC REFRIGERATION

COMPANION MERCHANDISE

Oil Burner Industry's Progress Under Code Told by Authorities

NEW YORK CITY—Operation of the program for stabilizing the oil burner industry as projected by the Oil Burner Code Authority has been summarized by Assistant Deputy Administrator Schwan of the NRA and by Morgan J. Hammers, chairman of the Code Authority.

The following highlights of the Code Authority activity were disclosed by Mr. Schwan and Hammers as follows:

1. That, in the matter of filing and distribution of prices under the open-price plan of the code, there has been an exchange of 33,000 sets of price data among 265 manufacturers in all parts of the country.

2. That, the decentralization program for effecting a greater degree of local compliance has resulted in the zoning of the entire country into 462 competitive sales areas which immediately are to come under the local jurisdiction of groups of five governors to each territory, one in each group being the zone chairman and responsible directly to the Code Authority. Under this decentralized administrative activity the huge task of distributing prices to dealers and distributors involving the issuance of some 300,000,000 sets of price data among 18,000 local outlets will be reduced to a practical and workable minimum.

3. That, in the matter of achieving compliance with the fair trade practice regulations, there has been a total of 159 violations satisfactorily closed; a total of 150 code interpretations rendered with respect to labor, prices, levies, fair practice, etc., and a total of 41 violations pending. In no single instance, it was stated, in the first 60 days of the Code Authority's regime, has any member of the industry refused to recognize the power of the code or of the Code Authority to enforce it.

4. That, the establishment of a uniform accounting system for the industry under development by Ernst & Ernst has progressed so rapidly that it will be completed about Jan. 1.

5. That, the collection of levies incident to the support of the many-sided work involved has met with quick response from the industry, some 90 per cent of the producing forces having already complied with respect to payment of the levies.

Building Upturn Boosts Holland Furnace Sales

NEW YORK CITY—The upturn in residential building during the past summer and an increase in rehabilitation expenditures were reflected in a moderate gain in the sales of the Holland Furnace Co., declares the Dec. 27 issue of *Standard Trade and Securities*, published by Standard Statistics Co., Inc.

The company is the largest manufacturer and distributor of warm-air heating systems, which are marketed through a sales organization comprising some 576 branches. Holland also produces air-conditioning apparatus for use in conjunction with regular heating units.

"A profit was reported for the September quarter, and common share earnings for the first half of the company's fiscal year amounted to 25 cents, against a deficit of $2.49 for the similar period a year earlier," says the report.

"While the company has now entered its seasonal period of slack operations, it is possible that, with the aid of price advances which are expected in the near future, a loss for the full fiscal period will be avoided."

New Oil Burner Model Is Introduced

ST. LOUIS—Scott-Newcomb, Inc., of this city has announced a new "Pioneer" model oil burner for the 1934 market. It is of 1½ to 4 gal. per hour capacity with up to 1,000 sq. ft. steam radiation.

Model CJ, as it will be known, has been designed with a larger blower having greater air capacity in order to permit the use of a special slow-speed motor. Detailed changes have been made in the material used for pump gears, in order to insure greater quietness of operation.

The ignition transformer has been moved from beneath the blower housing to a position above the blower assembly; while all safety controls are now concentrated in one compact unit attached to the air-blast tube.

Home Demonstrations Bring Sales of 4 Ranges

HARTFORD, Conn.—Five "home group" demonstrations of electric cookery have resulted in the sales of four electric ranges by Gustave Zurcher, veteran salesman of the Hartford retail store of Modern Home Utilities, Inc., Waterbury, Conn., distributor for General Electric Appliances.

The home demonstration plan used by Mr. Zurcher is very similar to the one widely used by the Club Aluminum Utensil Co. The salesman interests a prospect or user in planning a social gathering of friends and neighbors, at which an actual demonstration of electric cookery is presented.

Salesman Zurcher has had the cooperation of the Hartford Electric Light Co., which donated the services of Miss C. Burdette, one of its home economists to the demonstration.

The Hartford retail salesman has also demonstrated the efficacy of employing the user follow-up, as 16 of the 20 ranges which he has sold since September were purchased by users of General Electric refrigerators.

G-E Starts Building 60-in. Kitchenettes

CLEVELAND—General Electric's 60-in. kitchenette for apartment houses, first displayed in the G-E exhibit at the World's Fair is now in production and will soon be available, according to George Kobick, apartment house division manager.

Included in the equipment is an electric refrigerator and an electric range. The kitchenette measures 60 in. wide, and 22½ in. deep.

The food preparation center consists of stainless table top working surface, and storage space for knives, beaters, mixing spoons, and appliances for preparing foods. The cooking center, comprising the electric range, has space for storing cooking utensils. The cleaning center, including the sink, has storage space for cleaning utensils, cooking utensils, and cleaning materials.

The G-E refrigerator is model HE-3K, with 3-cu. ft. capacity and 6.8 sq. ft. of shelf area, porcelain interior, glyptal exterior, two freezing trays with a capacity of 40 cubes.

The G-E range is model G10B8 with three Calrod surface units, two open-coil oven units, automatic temperature control, aluminum broiler pan, shelf-type oven door.

Shipments Made on New Crane Boilers

CHICAGO—Shipments are now being made by Crane Co. on the recently announced Crane D-1 series oil-burning boiler.

The Crane boiler-burner unit will be sold by Crane branches through the heating trade only. This is the same merchandising set-up followed in the distribution of all Crane products.

The boiler is a cast iron sectional boiler and is offered in assemblies of from four to eight sections, covering a range from 500 to 1,400 sq. ft. of steam and from 800 to 2,240 sq. ft. of hot water radiation.

A Crane development incorporated in the boiler is the design which brings about what is known as "sustained heat." When the oil burner shuts off, the tendency of the light, heated gases is to rise. As there is no escape for them at the top of the Crane boiler, with its flues running downward into two horizontal, completely water-jacketed passes at the bottom, the heat is sustained longer.

The Crane patented controlled water travel baffle is incorporated in the water legs of all sections, thus causing the water to flow over all the heating surfaces, counter-current to the hot gases.

Four New Distributors For Standard Range

TOLEDO—Four new distributors for Standard electric ranges have been announced by the Standard Electric Stove Co. of this city.

The new distributors are H. C. Baker Co., Inc., of Roanoke, Va.; Rackliffe Bros. Co., Inc., of New Britain, Conn.; Scranton Distributors, Inc., of Scranton, Pa.; and the Williamsport Auto Supply Co. of Williamsport, Pa.

The Standard Electric Stove Co.'s new catalog will be ready soon.

Model Laundry Is Built by Newspaper

CLEVELAND—A model laundry, designed by Westinghouse experts, has taken its place with the Westinghouse all-electric kitchen in the *Cleveland News* Institute here.

A Westinghouse spinner-type washer is the main piece of equipment in the laundry, which has been designed so that a minimum of steps will be taken by the housewife. The equipment has been so located that one laundry operation follows the preceding operation without a duplication of steps.

Directly under the ventilated clothes chute, which is built in, are ventilated sorting bins for three classifications of clothes. These sorting bins are on castors, so that they can be wheeled over to the washer.

Regular white porcelain double tubs have been placed in a cabinet, like a modern dishwasher. With this arrangement no piping appears, nor is there any space beneath the tubs to collect dirt.

The washer plugs into an electric outlet on the front of this cabinet so that there is no dangling cord to annoy the housewife. This cabinet also has a door at each end, and inside are spaces for supplies.

Inside the right-hand door are water valves and a permanently connected rubber hose with a metal goose neck on the end. This rubber hose can be lifted out and hung over the edge of the washer.

A new Westinghouse automatic ironer with two open ends on both roll and shoe and automatically controlled heat, and a Westinghouse electric water heater comprise the other equipment.

Lighting for this model laundry has been carefully studied and installed, and walls are finished in colorful Micarta.

California Utility Drops Plans for Range Rentals

LOS ANGELES — Southern California Edison Co., Ltd., has announced the withdrawal of the range rental plan as a part of its load building program, it has been announced by W. L. Frost, vice president in charge of sales. No reason was given for the abandonment of the rental program.

Under the "range sales booster" campaign, the utility provided a special model electric range for trial purposes which was available to home owners at a rental of $1.50 per month.

Dealers making such installations were paid a fee of $7.50 at the end of 90 days provided they had not, in the meantime, sold the customer a permanent installation.

Wiring costs to the extent of $35 per installation were also paid by the company. The wiring allowance on ranges sold by dealers will be continued.

Westinghouse Has Lamp For Vacuum Cleaners

EAST PITTSBURGH, Pa.—Headlights on domestic vacuum cleaners to facilitate the search for dirt under beds, tables, radios, and other furniture requires a special lamp such as the 15-watt Mazda design just announced by the Westinghouse Lamp Co.

A special filament construction is necessary to counteract the vibration emanating from the electric motors in vacuum cleaners. In the new Westinghouse lamp, the filament construction is similar to that used in locomotive headlight lamps and special wire is used to withstand the severe vibration.

Porcelain Enamel Use Described in Bulletin

MIDDLETOWN, Ohio—"Relation of Porcelain Enameled Iron to Modern Architecture" is a recent bulletin put out by the American Rolling Mill Co. which relates the progress and advancement in the usage of porcelain enameled metals in exterior and interior construction of commercial and domestic buildings.

A section of the pamphlet is devoted to the use of porcelain enamel in house interiors and with reference to kitchens it says:

"Kitchens could well be finished almost entirely, if not entirely, in porcelain enamel. Multi-tone panels or tiles could be offset by deeper-toned baseboards and wainscoting, or trimmed with bright, non-tarnishing stainless steel. Ceilings could appropriately carry out the artistically relived porcelain enameled effect."

One part of the bulletin is entitled "Food Stores Shed Their Dullness" and the progress made in food market interior decoration is pointed out. The Kroger Co. super-store in downtown Cleveland is used as an illustration of this advance.

Of considerable interest is the section on the use of porcelain enamel for house exteriors, in which the method of application to the walls is explained in some detail.

Kautz Joins Staff of Republic Steel Corp.

YOUNGSTOWN, Ohio—Karl Kautz, ceramic engineer, has joined the staff of Republic Steel Corp. here to specialize in research and field service on enameling sheets. Mr. Kautz's headquarters are at Republic's central alloy division at Masillon, Ohio.

THE shadows of the Stewart-Warner Refrigeration Distributor's Salesman and the Stewart-Warner Refrigerator itself—cast across your city—foreshadow a season of refrigeration profits for every dealer signing up for this great line.

See that big portfolio under the salesman's arm? That is filled with merchandising plans, dealer helps and sales suggestions—proved—practical—tried and true!

Notice the outline of that packing case? Of course, it isn't an actual shadow of an actual Stewart-Warner Refrigerator, because Stewart-Warner isn't giving out any advance information—*yet!*

BUT WAIT UNTIL YOU *SEE* THIS LINE!

A Refrigeration Forecast for 1934!

Stewart-Warner, with its new management, directed by Joseph E. Otis, Jr. and Frank A. Hiter, is "going places" in the Refrigeration Field in 1934.

They have a plan of major interest to major outlets—a PROFITABLE Refrigeration Plan—uniform and nation-wide—ESPECIALLY designed to meet the problems of the big and little retailer alike.

They have the line—properly priced—considerate discounts—optional Service Plan—name acceptance—outstanding performance—rugged construction—plenty of features—nationally advertised.

Fully Announced in January!

Be sure you listen to the Stewart-Warner Plan before making *your* plans for 1934. It's an interesting, clean-cut story right down your alley.

Full announcement in January. Your request on your letterhead will guarantee your getting complete details for your city.

STEWART-WARNER CORPORATION, Dept. 8, 1850 Diversey Parkway, Chicago, Illinois

Course in Commercial Refrigeration Offered

CAMBRIDGE, Mass. — Supplementing its course in household refrigeration which started last fall, the extension division of Massachusetts Institute of Technology is now offering a course on the installation and service of commercial machines. The series of eight weekly lectures starts Jan. 12, with John G. Praetz, Jr., as instructor.

Following are the subjects to be treated in the course, according to Mr. Praetz:

Unit, multiple, duplexing and bi-temperature, and code and non-code installations; tube running; installation of hard drawn copper tubing; wiring details; baffling; mechanical controls; expansion valves; float valves, high and low side types.

Thermostatic expansion valves; water control valves; electrical controls; thermostatic switches; high and low pressure cut-off; overload switches; magnetic unloaders.

General Electric units: ice cream cabinets, show case units, and water coolers.

Frigidaire units: four-cylinder condensing unit and mechanical details; YD switch control; three-ton evaporator and store-cooling unit; water and beer coolers.

Frick units for small commercial work and ice making; Kelvinator units: heavy duty type condensing units with refrigerant-cooled heads; special commercial evaporators; flooded and dry installations of evaporators and control valves; small York units using Freon; beer-cooling systems.

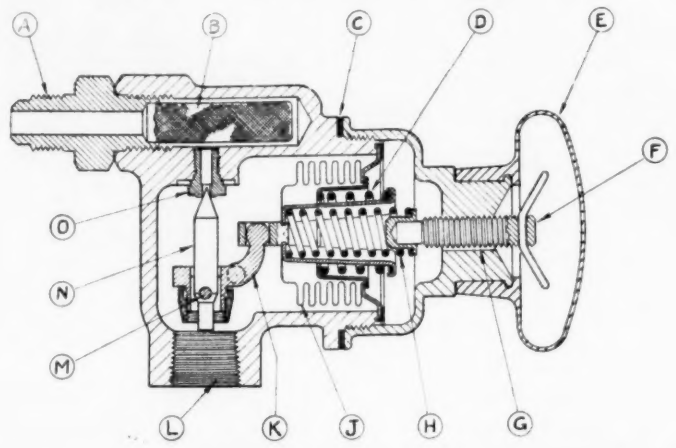
The Matheson Co

East Rutherford, N.J.

REFRIGERATOR

— OILS —

New Expansion Valve



This is a cross-section of American Injector Co.'s new expansion valve. (A) inlet connection, (B) strainer, (C) cover gasket, (D) outer spring, (E) breather cap, (F) adjusting screw, (G) breather groove, (H) adjusting spring, (J) floating bellows, (K) floating bell-crank, (L) outlet, (M) needle float pin, (N) steel needle, (O) steel seat.

All-Gas Kitchen Placed On Wheels by Utility In Philadelphia

PHILADELPHIA—Rambling about the streets of this city is a colonial brick house with a green-shingled roof and a foundation of two rubber-tired wheels. It is the new traveling showroom of the Philadelphia Gas Works Co.

The coach carries a display of gas appliances in realistic home settings to the doors of the company's customers.

It is a light-weight trailer coach, approximately 25 ft. in length, drawn by a six-cylinder coupe. With its walls and green roof, doors and window sashes finished in "antiqued" ivory combine to give the coach an authentic colonial style.

Forward part of the coach represents a modern kitchen finished in soft shades of blue, peach, and ivory, and floored with inlaid rubber tile. It has modern cupboards, a Monel metal sink and work table, and a little planning desk.

Features of the kitchen are an automatic gas range and an Electrolux refrigerator.

In the rear part of the coach is a modernized basement setting displaying an automatic gas water heater and gas furnace.

Most of the gas appliances displayed, including a gas steam radiator used in heating the coach, are demonstrated in operation. The gas fuel is supplied by cylinders carried in a special compartment.

The coach is manned by a uniformed driver, local sales representatives, and a home service instructor who acts as hostess and conducts cooking demonstrations.

Each day it is stationed in a different section of the city.

It is planned to extend its use from time to time to gas appliance dealers of the city, according to H. W. Olcott, Jr., advertising manager of the Philadelphia Gas Works Co.

Kentucky Appliance Drive Nets 379 Units

LOUISVILLE, Ky.—Three hundred seventy-nine electric refrigerators were sold by the Kentucky Utilities in a recent appliance merchandising campaign. Also sold were 88 electric ranges and 10 water heaters. Final tabulations showed that 155 per cent of quota was accomplished.

C. B. Hanna of the Central Division took first place among divisions with 252 per cent of quota. A. M. Travis is commercial manager of this division. Second place went to J. H. Bailey, manager of the Mountain division with 196.6 per cent of quota. C. W. Haggard is commercial manager of the Mountain division.

D. J. Nienmeier and his Lebanon District took district honors with 592.3 per cent of quota. Leading individual salesmen were: Richard Abell of Lebanon, Ky., with $7,434.37; Dean Graybeal of Norton, Va., with $5,402.71; and D. O. Kimmel of Greenville, Ky., with $4,650.34.

Local office honors were won by Springfield with Morhead in second place and Stamping Ground in third.

Honors in the employe division went to H. L. Moss of Springfield, J. R. Gibson of Coeburn, and Earl Bartlett of Beaver Dam.

Rules for Retail Code Administration Given

(Concluded from Page 1, Column 1)

on the date as of which the assessment for expenses of code administration. For such record it is provided that every full-time worker—including proprietors, employers, executives, managers, etc.—and every part-time worker employed 60 per cent of the work-week or more shall be included.

The regulations provide that insignia for display by members of the retail trade eligible to receive them will be issued as fast as retailers execute the assessment forms and pay their assessments. In form, the new insignia carries the familiar Blue Eagle and the legend "We Do Our Part." But will in addition indicate the particular division of the retail trade in which the recipient is engaged.

Winners in Kelvinator Competition Are Listed

(Concluded from Page 1, Column 4)

Margaret Malone, Racine, Wis.; Mrs. Ella Davidson, Roswell, N. M.; Mrs. Lucy S. Lynn, Morganfield, Ky.; Mrs. Lora Lashbrook, Evansville, Ind.; Mrs. Fred Abare, Chazy, N. Y.; Mrs. Mary Moyle Kellogg, Alvin, Tex.; Mrs. Herman P. Dixon, South Eliot, Me.; Mrs. Fred C. Freytag, Laramie, Wyo.

Mrs. Arthur Springer, Raymond, Wash.; Mrs. Frank Schulze, Newcastle, Wyo.; Bernice M. Scholes, Tuba City, Ariz.; Anna D. Webater, Denver; Mrs. W. J. Burtis, Manhattan, Kan.; Mrs. W. T. Ogden, Northport, Wash.; Mrs. C. B. Riddle, Sheffield, Pa.; Myrtle A. Campbell, Honolulu, T. H.; Mrs. Lois S. Capwell, Darien, N. Y.; Mrs. Ruth Earle Jones, Salley, S. C.; Mrs. Ellen Smith, Dewey, Okla.; Miss Emily Dinsmore, Akron, Ohio; N. H. Huguelet, College Station, Tex.

Harrison Salesman Sells 170 Units in Two Jobs

NEWARK—Jack Ruf of P. H. Harrison & Co., General Electric distributor here, has recently closed two apartment house sales for a total of 170 refrigerators.

In the apartment house known as 2801 Boulevard in Jersey City, N. J., 117 General Electric models are being installed, while 53 have been placed in the apartment building known as 1055 Boulevard, East at Weehawken.

Kelvinator & Servel Operations Analyzed

NEW YORK CITY—Operations and financial statements of two household electric refrigerator manufacturers, Kelvinator Corp. and Servel, Inc., are analyzed in the "Household Products and Supplies" number (Dec. 27) of *Standard Trade and Securities*, published by Standard Statistics.

Both of these firms, the report points out, made a better showing in 1933 than in 1932 and both have good prospects for a successful year in 1934. Kelvinator's net earnings per share of common stock for its fiscal year ended in 1933 was 64 cents as compared with 9 cents the preceding year while Servel will probably have a deficit (as estimated by Standard Statistics) amounting to 5 cents per share of common stock as compared to a deficit of 48 cents per share in 1932.

Report on Kelvinator

With reference to Kelvinator the report states:

"Unit sales of the company's household refrigerators reached record levels in the recently ended fiscal year, exceeding the total for the preceding period by 56 per cent. Sales of commercial equipment also increased, largely because of the legalization of beer.

"Prices during the heavy sales period, however, were at the low levels established by severe competition. Since quotations were raised in September and recently were advanced further on certain lines, the outlook for the current fiscal term is more favorable, especially in view of the company's large stocks of low cost raw materials.

"Despite the appropriation of funds to retire remaining funded debt, financial condition on Sept. 30 was stronger than that a year earlier, justifying the declaration of a dividend. Establishment of a regular rate of payments is possible in 1934."

Study of Servel

The report on Servel is as follows:

"Unit sales of company's refrigerators for the past fiscal year were fairly satisfactory, but prices were too low to permit much profit and costs were increased in the final quarter by the NRA. While nine months' earnings approximated preferred dividend requirements, it is doubtful if a profit was attained in the final quarter.

"There is little prospect of profitable operations during the seasonally dull winter months, but the outlook for the coming spring and summer is promising, since prices should be higher and a widespread demand for the company's new air-cooled Electrolux is indicated.

To Vote on Proposal

"Stockholders will vote Jan. 5 on a proposal to elect Axel Wenner-Gren, chairman of A. B. Elektrolux, as chairman of this company, to sell to a corporation controlled by him 100,000 common shares at $4.50 a share, and to grant the same company an option to purchase an additional 100,000 shares at prices ranging from $5 to $7.

"This measure would dilute somewhat the equity of common shareholders, but it will bring the company the active interest and services, without compensation, of the head of the Swedish company from which the United States rights to Electrolux patents were obtained.

"The bulk of Servel's output is in gas refrigerators, sold under the trade name 'Electrolux,' although electric refrigerators, gas engines, truck bodies, and engine castings also are manufactured. Products other than refrigerators have added little to revenues in recent years."

Ice Company Business

This year's improvements in general business conditions has aided operations of ice companies only moderately, says *Standard Trade and Securities*.

Generally low prices have combined with unsatisfactory volume to restrict the earnings of the industry. A few companies will report 1933 profits equal to those of the preceding year, but statements of most units will be less favorable, the report states. Despite such results, financial positions at the close of the year will be improved over the rather unimpressive showings of a year earlier, because of reduced or omitted dividends and careful conservation of liquid resources.

The report further states that "with prospects of further expansion of business activity and a more general improvement of family incomes, at least moderate gains in ice consumption are indicated. Furthermore, competitive difficulties of the trade have been lessened by the recently approved industry code."

Refrigerator Cabinet Is Equipped with Heater

NASHVILLE, Tenn.—A refrigerator in which a heating element is installed might seem to be the strangest of all paradoxes—but such is the installation made for the local Westinghouse office for the biology department of Vanderbilt university.

Biologists at the university needed a storage compartment in which cultures could be kept alive. A constant temperature of about 86° F. is necessary for cultures. This particular temperature presents a problem because it is too low to get with a heater and too high to maintain with a refrigerator.

The local Westinghouse office, however, supplied an AL-45 household refrigerator in which a heater had been added. The heater was a coil of nichrome wire with a mercoid thermostat attached. The control circuit was so arranged that the thermostat would operate either the compressor or the heater as needed.

Gas Appliance Industry Code Approved

WASHINGTON, D. C.—The code of fair competition for the gas appliance industry, as proposed by the Gas Appliance Institute, has been approved by President Roosevelt.

Principal fair practice provisions of the code provide for published price lists, and prohibit sales below cost, repurchase agreements, use of premiums, violations of published price schedules, and consignment selling.

A gas appliance committee will administer the code.

Frigidaire Beer Cooler Used in Night Club

JAMAICA, N. Y.—The smart "La Casino" night club here has been equipped with Frigidaire draft beer-cooling equipment.

The installation was made by the Jamaica branch of the Frigidaire Sales Corp.

1934

For the coming year, as in the 25 years previous, Commonwealth Brass Corporation rededicates its energy, equipment, facilities and experience to the task of supplying the refrigeration industry with fiittings.

"Built Right to Stay Tight"

Our plant is capable of producing several million pieces daily, our processes of manufacture insure maximum quality, and our experienced personnel is adept in sensing and developing designs to meet new conditions.

We therefore suggest that if 1934 is to be free from fitting troubles your best resolution is to

"Depend on Commonwealth"

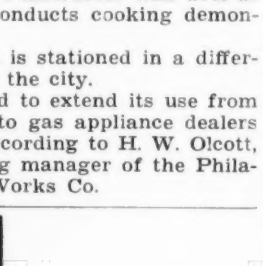
Send for catalog No. 36 fully descriptive of our complete line

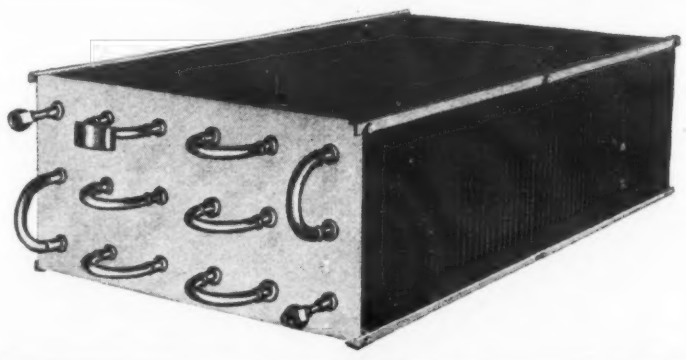
COMMONWEALTH BRASS CORPORATION

COMMONWEALTH AT G.T.R.R.

D E T R O I T

BUILT RIGHT TO STAY RIGHT





THE adequate refrigerator of old style, high ceiling Coolers is a problem solved best by the use of Model C LARKIN *Original 100%* Vertical Surface Aluminum plate COIL pictured above. Comes in 11 sizes for Coolers 5x4′ to 12x10′.

One of a newly enlarged line of 124 Standard Models and Sizes stocked for quick delivery to the trade from Atlanta, Brooklyn and Chicago. Special size Coils from Atlanta only.

LARKIN

Refrigerating Corporation

WAREHOUSES
Brooklyn - Chicago

NRA MEMBER

100% VERTICAL SURFACE

Originator and Manufacturers
ATLANTA, GA., U.S.A.

U.S. PATENT No. 1,776,238.

LARKIN COILS

You will need this big new book

PROSPECTUS

of the coming 1934 edition of the Refrigeration Directory ★ and Market Data Book ★

Trends of Distribution

—An interesting picture of the refrigeration industry in 1933 with special attention to the development of air conditioning.

Distributor and Dealer Survey

—Results of survey to show—the number and types of distributors and dealers selling household and commercial refrigeration and air conditioning equipment.

—the number of dealers who sell over 5, 10, 25, 50, 100, 250 and 500 refrigerators per year.

—the number of refrigerator dealers who sell companion merchandise.

—the number of refrigerator dealers who sell more than one make.

—the number of dealers who sell both household and commercial refrigerators.

Wired Homes

—Figures for U. S. by states, counties and towns of 2,500 population and over, together with figures on potential refrigeration sales.

Refrigeration Associations

—Listing of official personnel of the trade associations in the refrigeration industry.

Sales Statistics

—Monthly sales for household refrigerators by states for the last six years with detailed breakdown showing sales of various sizes by the NEMA group of companies.

—monthly sales for commercial refrigerators for the last six years with breakdown showing sales of cabinets, water coolers, ice cream cabinets, milk coolers, etc.

—monthly export sales on all refrigerators by countries for the last eight years.

—sales of industrial refrigeration machines for the last 33 years.

—an estimate of number of refrigerators sold for replacement.

Specifications

—Of all models of all makes of household and commercial refrigerators.

First issued in 1932, the Refrigeration Directory and Market Data Book filled a big demand for facts and figures on all phases of the refrigeration business. Potential buyers of equipment and services have turned to the Directory for their needed information and in its two years of service the Directory and Market Data Book has been a potent factor in bringing buyers in contact with sources of supplies.

Directory Listings

Alphabetical Listings

—Names of all companies which sell products or services to the refrigeration industry, listed alphabetically.

Trade Names

—Alphabetical listing of all trade names of refrigeration products or equipment sold to the refrigeration industry identified with the product and name and address of the manufacturer.

Classified Products

—Listing of all products sold by or used by the refrigeration industry together with name and address of manufacturer classified for ready reference.

Geographical Listings

—All manufacturers together with executive personnel, telephone number, addresses and products, listed by states and cities.

Many subscriptions expire at the end of the calendar year. Take advantage of this opportunity to renew your subscription and place your order for a copy of the 1934 Directory at the reduced rate for combination orders. The following rates are for the United States and countries in the Pan-American Postal Union:

Subscriptions to Electric Refrigeration News (1 Year)		1934 Directory	Combination Rate
One subscription	$3.00	$3.00 per copy	$5.00
5 or more subscriptions...	2.75	2.75 per copy	4.50
10 or more subscriptions...	2.50	2.50 per copy	4.00
20 or more subscriptions...	2.25	2.25 per copy	3.50
50 or more subscriptions...	2.00	2.00 per copy	3.00

The 1934 Directory will be ready for distribution about March 1.

BUSINESS NEWS PUBLISHING CO.

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EDITORIAL AIMS

To encourage the development of the art.
To promote ethical practices in the business.
To foster friendly relations throughout the industry.
To provide a clearing house for new methods and ideas.
To broadcast the technical, commercial, and personal news of the field.

VOL. 11, NO. 1, SERIAL NO. 250, JANUARY 3, 1934

Tennessee Valley Experiment

INASMUCH as E. G. BIECHLER, president of Frigidaire, and T. K. QUINN, vice president of General Electric, have been functioning as members of the special committee from the National Electrical Manufacturers Association which has been conferring with a Tennessee Valley Authority committee on the question of extending the use of electrical appliances in the states of Alabama, Georgia, Kentucky, Mississippi, North Carolina, Tennessee, and Virginia, members of the refrigeration industry should harbor no fears relative to the possible embarrassment of the trade through governmental competition.

As most followers of the New Deal can tell you, one of President Roosevelt's pet magic-letter projects is the TVA (Tennessee Valley Authority), with which he hopes to demonstrate to the entire nation that electricity can and should be produced and sold at rates far below those now prevalent. A projected TVA rate schedule, for instance, was made public (but not yet effective) with domestic rates as low at 0.4 cents per kilowatt hour when more than 400 kwh. per month is burned.

Government Does Not Intend to Merchandise Appliances

And now the President, having been informed that in order to achieve such low rates more juice must be consumed in the seven TVA states, has set up the Electric Home & Farm Authority to provide easy credit in that territory for the sale of electric refrigerators, ranges, dishwashers, water heaters, and other appliances.

At first some elements in the refrigeration industry saw a bogey man in this project, and worried lest the government attempt to enter the appliance merchandising business. Wild statements had been attributed to TVA officials, who had purportedly argued that prices on electrical appliances were much too high, and they intended to do something about it at once.

Will Promote Use by Financing Sales of Established Trade

Now, it seems, the tiger is really but a tabby cat, and a helpful feline at that. Electric Home & Farm Authority will sell no appliances. It will, instead, help dealers sell them by handling the financing. And financing—particularly to southern dealers—has been a troublesome bugaboo.

Under the proposed plan, dealers will discount their time-payment paper with the Electric Home & Farm Authority. Backed by the RFC (which will guarantee the paper up to $10,000,000), the EH&FA will rediscount it at local banks.

The program is explained by David E. Lilienthal, one of the directors of the Tennessee Valley Authority, as follows:

"The objective of this program is a wider and greatly increased use of electricity in the homes and on the farms in the seven states of the Tennessee Valley. In order to carry out the program there must be a broad-scale distribution of very low cost standard-quality electricity-using appliances, and concurrently a revision downward of electric rates.

"The new agency is based on a cooperative program in which the Federal Government, the electric utilities both publicly and privately owned, the electric manufacturing industry, and electrical dealers will participate."

It seems apparent that the TVA sees the advisability of protecting the interests of established dealers. And with Messrs. Quinn and Biechler—heads of two of the largest dealer organizations in the country—sitting in on the discussions, it does not seem likely that the TVA and the Electric Home & Farm Authority will do anything to disrupt the present order of appliance merchandising.

For the present, at least, it would appear that dealers in the seven states of the Tennessee Valley have been offered a valuable boon.

WHAT OTHERS SAY

What Is Air Conditioning?

THE original pioneers of air conditioning, 20 years ago, had something new, in fact many ideas and devices which were new. The term they chose to describe the whole job they did was appropriate. For *the whole job* was the thing they were talking about. The various parts were, in themselves, not new. Others had heated, ventilated, refrigerated, and otherwise treated air before them, but the combined job was properly called air conditioning, as an art and a commercial practice.

In the last year or two the term has been plagiarized pretty freely. It is less clear what it means today than years ago. It used to mean the service applied for the comfort of occupants in such places as the Roxy, in Macy's, Hudson's, and the legislative chambers in Washington. Now it may mean anything from an ordinary warm air furnace to an ordinary refrigerating machine, or perhaps it means a mere electric fan.

This is indicative of the increasing popularity of the notion, and is not a matter which can be controlled. Nor is it a matter of life and death— but it has amusing aspects, for everybody concerned wants to change the definition one way or another, to help sell his own wares. The room cooler man wants the term air conditioning denied to those who sell nothing but fans and filters; while the people who are pushing the idea of year 'round conditioning think the refrigeration aspect a mere incidental, not air conditioning in the true sense.

In a larger way there is considerable feeling at present between the heating and cooling fraternities on this subject. The heating man says that air conditioning is primarily an offshoot of his art. The genuine air-conditioning job, such as a movie house, uses heating much of the time and cooling little—and ventilating all the time. The art was largely developed by ventilating engineers. Refrigerating engineers had less to do with it. Commercially the refrigeration job is a sub-contract to the heating and ventilating job.

This is perfectly natural and just. Moreover, the heating engineers did the basic research on comfort, for the human being has always been their chief problem. Refrigeration meanwhile had a hundred different kinds of things to cool.

But recently the value of refrigeration in the picture has been realized. A purely commercial aspect of the case is the growing popularity of room coolers, in the last two summers. These are made, in the main, by refrigerator manufacturers. And we have heard several heating people complain that "we must correct the impression everybody has that air conditioning is all a matter of refrigeration."

As a matter of fact the general public does not think this, being rather confused about the whole subject, but the tendency is all that way now. The further advertising of comfort cooling and room coolers will continue to make refrigeration loom larger in the picture.

There is not a doubt in the world that in the long run the heating man is right, that the job is chiefly his and that air conditioning ought to be sold on a year 'round basis with the refrigeration an incidental attachment. But the importance of the technical contribution of refrigeration is not to be belittled. It is enormous. Refrigeration has been heretofore the one most important detail which was lacking, and only refrigerating people could fill the gap. In this direction the factor of chief contributory importance is probably the large fund of experience gained in the development of the automatic refrigerator. That is the normal forerunner of commercial air conditioning. Since the public hailed that as a new invention it will probably think the cooling aspect, rather than the familiar heating or ventilating aspect, is the new and appealing thing in air conditioning.—*Refrigerating Engineering*, December, 1933.

Chrysler Conventions Designed to Give Dealers Pertinent Facts

NEW YORK CITY—"We try to sell our dealers so thoroughly on our product that, when they get back home from the sales convention and begin to digest what they have heard, they have something that will stand cold analysis," declares J. E. Fields, president, Chrysler Sales Corp., in an interview "Planning Dealer Conventions That Produce Results," which appears in the December issue of the *Executives Service Bulletin*.

"We build our program up with the utmost care and collect an immense amount of data bearing on the various matters to be discussed," Mr. Fields states. "We are firmly convinced that there must be something more than the usual pep talks and Fourth of July oratory. A 'shot of hop' so to speak, soon wears off and if 'hop' alone has been used there is usually a bad reaction."

Personal Contacts Valuable

Though there is undoubtedly a great amount of good to be had from a general assembly of dealers, Chrysler sales executives believe that the real value of a sales convention lies principally in the personal contacts that are established between factory executives and the members of the dealer organization.

"During our sales conventions, therefore, we make it a point to see that every man present is given attention as an individual," says Mr. Fields. "There are a number of general principles that apply with equal force to all dealers, but at the same time each dealer has his individual problems on which he may need help.

"In all cases, we try to be specific rather than general. We are convinced that real information is of more value than any amount of ballyhoo. When our dealers assemble we are prepared to tell them just what is going on in the world of motor car selling, what is expected of them and how they may meet these expectations."

Analyze Sales

Chrysler's business is reduced to a quota basis and when a sales convention is held charts are prepared showing what has been done to meet quotas in various sections of the country.

"Obviously a dealer who has failed to make his quota wants to find some reason for this failure," says Chrysler's chief sales executive. "It encourages him and destroys his chance of falling back on an 'alibi' if the charts show that other dealers are making their quotas.

"Our charts show not only what we are doing against our quotas, but what competition is doing. With this information available, our executives can go into conference with the dealer who is making a poor showing and get right down to cases, to the end that he probably will derive a lot of help."

Cost Regulation

One of the essentials of success in selling motors cars is an intelligent system of cost regulation. It doesn't mean much to a dealer to move merchandise unless he can move it at a profit.

"For the benefit of our dealer body," says Mr. Fields," we have a tremendous mass of statistics available, some of which can be applied to his particular case. We can show him just what it ought to cost him to do business in his retail department, in his used car department, and in his service department.

"These figures are based on a long experience and cover the entire country. Many a dealer who was discouraged with his profits—or lack of them—even when his sales were up to quota has been able, as a result of the information placed at his disposal, to reorganize his business on a profitable basis. We do not disclose the showings of individual dealers, however.

What Costs Should Be

"We can tell a dealer, for example, exactly how many cars he ought to be able to sell, what it ought to cost him to do business and what profit he ought to make. Many of our dealers need the kind of instruction we can give them. Most of them welcome it."

As proof of the efficiency of this system Mr. Fields points to the fact that Chrysler Sales Corp. has suffered very few dealer casualities in three years of sub-normal business. In the first seven months of 1933 1,052 new dealers were signed up.

Stage Sales Messages

All sales messages personally presented to distributors and dealers are "staged" wherever possible, according to Mr. Fields. Lately a small private theater has been rented for Detroit dealer meetings and sales conventions. This theater seats 400 persons, which means that the gatherings can be intimate without sacrificing acoustics and the indubitable value of having the speakers appear upon a real stage.

Generally, and especially when the factory has a new product to present, the sales convention program is opened with talks by Chrysler executives, who discuss various phases of the business. When possible the program is culminated with a talk by Mr. Chrysler.

Obviously, in the case of district sales conventions it is not possible to have such an array of personages on the program as can be mustered in Detroit. However, those in charge of district programs make it a point to see that as many executives as can be spared meet the dealers in whatever section they may assemble.

Convention Program

The program of speakers generally takes the greater part of a morning, says Mr. Fields in further outlining the convention program. Meanwhile none of the dealers has been given an opportunity to see the new cars. When the "build-up" is complete and the audience is sitting on the edge of the chairs in anticipation, the curtain is raised and one model of the new line is shown, in front of a velvet drop, with footlights and floodlights to set it off to advantage.

"Following the dramatic presentation of the new car, we arrange to display a full line, either at the factory or some suitable display space," Mr. Fields states. "Here the dealers get their first chance to look over the details of the line, to see how it appears in various kinds of paint jobs, to size up the accessories and improvements.

Factory Inspections

"One feature of a sales convention that we have found very interesting to the dealers is a trip through the factory. It helps a man who sells cars to know as much as possible about how they are made."

After the dealers have had a chance to learn all about the new line and to get a behind-the-scenes picture, they are given an opportunity as individuals to meet factory executives and talk over the individual propositions.

"The social side of our sales conventions is neither neglected nor overemphasized," says Mr. Fields. "Sometimes we have combined business with pleasure by chartering one of the lake steamers and taking them on an overnight trip. We try to minimize the business features of our banquet and to offer good food and good entertainment in an informal manner."

Sparton Will Sponsor Series of Broadcasts

JACKSON, Mich.—Sparks-Withington Co., makers of Sparton refrigerators and radios, launched a new series of radio broadcasts over the red network of the NBC Sunday afternoon, Dec. 31.

The Sparton program brings Richard Himber's Ritz-Carlton orchestra to the air with Frances Langford, well-known blues singer, as featured star.

The Three Scamps, and Joey Nash, vocalist with the Ritz-Carlton orchestra, will also be featured. The Sparton program will be heard from 3:30 to 4 p. m., E.S.T.

Sparton distributors and dealers throughout the country are tying in promotional activities with the new program, according to Capt. William Sparks, president and general manager of the Sparks-Withington Co.

Daniels to Head Apt. Sales in Bronx Division

NEW YORK CITY—Vernon E. Daniels, sales representative of Rex Cole, Inc., G-E distributor here, will head the Bronx division of the apartment house department in 1934, according to John J. Massimi, Cole's apartment house manager.

Mr. Daniels is succeeded by Harry Kohl, who has served in the retail department, as supervisor in charge of one of the Rex Cole kitchen coaches, and as retail branch manager in Poughkeepsie.

Joseph J. McGill, sales representative in the Brooklyn division of the apartment house department has been named office manager of the new Pacific St., Brooklyn, branch office, leaving his place to be filled by Irving Gluck, formerly of the retail department.

Zenith Opens Office In Detroit

DETROIT—Opening of a new sales and engineering office in Detroit for the automobile radio division of the Zenith Radio Corp. has been announced by Ray S. Erlandson, manager of manufacturer's sales.

The new offices are located in suite 874 of the Maccabees building. Grant Eller and L. L. Kelsey are in charge of the Detroit activities for Zenith.

BY GEORGE F. TAUBENECK - - -

Local Codes

Numerous small associations, formulating local codes of fair competition, have sprung up out of sympathy with the general spirit of cooperation with the NRA.

As early as June 7, a code of practices for merchandising of gas and electrical appliances had been presented to and accepted by the Mountain States Hardware and Implement Dealers Association and the Rocky Mountain Electrical Association.

Refrigerator Association, Inc., of New York City announced on July 5 that it was a cooperative organization with membership limited to distributors of refrigeration equipment (including utilities), and listed among its accomplishments the establishment of uniform trade practices, the exertion of united action to obtain for distributors a more equitable deal in apartment house contracts, and the providing of a clearing house for credit information and arbitration of disputes.

To promote fair competition and stability in the business of selling electric refrigeration, 14 distributors in Kansas City about the same time drew up a code of business practice and agreed to follow it in their own operations, with their respective dealers cooperating.

* * *

More Men Working

As early as in January Grigsby-Grunow called back 2,000 employes to the refrigeration division. Frigidaire made up a partial third eight-hour shift in April, and rehired 500 old employes.

Universal Cooler was compelled by increased sales in April to step up its production to the point where more workers were then employed in the factory than ever before in the history of the company.

General Electric upped its forces from 50 to 100% at the same time.

In May, Frigidaire increased its forces to the point where 1,500 additional men had been taken on. Working force of the Seeger Refrigerator Co. was doubled in May with the hiring of 350 new men, to take care of regular output of the plant which was contracted for up to Aug. 1. More than 200 new employes swelled the Norge payroll.

The Westinghouse Mansfield plant was employing June 7 more workers than at any time since its opening in 1918, and 400 more people than were working there during the war-time peak.

Similar increases went on all through the summer, until Crosley Radio Corp. reported an employment increase of approximately 100 per cent during the two-month period ending Sept. 30. Apex added 540 workers between the signing of the President's Reemployment Agreement and the first of November. General Household Utilities Co. put on 1,000 workers in November, chiefly to work on radio production.

More directly traceable to the NRA than increased employment was the upswing in wages noticeable about the middle of the summer.

Frigidaire led off June 7 with a 5 per cent raise in the pay of hourly workers in the Moraine and Taylor St. plants. Copeland Products gave a similar increase to its workers at about the same time.

Employes of Kelvinator Corp. were given an increase in compensation July 1 which averaged 10 per cent.

Cooperating with the NRA, Servel, Inc., granted a 5 per cent raise in the wages of factory workers late in July. Frigidaire announced a second pay increase of 10 per cent for all hourly workers in its plants and in company-owned branches.

July 31 Grigsby-Grunow complied with the NRA by establishing a seven-hour day and five-day week for employes at 40 cents an hour. Perfection Stove Co., manufacturer of kerosene-operated refrigerators, increased by 10 per cent the wages and salaries of all persons in its employ.

Universal Cooler Corp. in August increased its employes wages by 10 per cent, reduced hours to 36 per week; all salaried employes of General Motors Corp. received a 10 per cent raise Aug. 1; Larkin Refrigerating Corp. placed its factory employes on a 35-hour week at a minimum wage of 40 cents an hour.

* * *

Contraction

Many refrigeration concerns dropped out of the picture, went through reorganizations, or were placed in receivership in 1933. Distributors by tens, and dealers by hundreds, left the picture, too.

Chief of the big names which suspended operations in 1933 was Copeland.

Preceding the Copeland announcement, which came in March, directors of Valerius Corp., soda fountain manufacturer in Jefferson, Wis., decided at a meeting Jan. 8 that the company was no longer in a position to meet its obligations or to continue its operations.

Assets of Dayton Refrigeration Corp., subsidiary of National Pumps Co. and manufacturer of Dayton electric refrigerators, were purchased the last week in January, 1933, by Heinz & Munschauer of Buffalo. And refrigeration activities of Bauer Bros. were suspended pending better times.

Copeland Products, Inc., swung into line the last of March and was placed in the hands of a creditors' committee. ELECTRIC REFRIGERATION NEWS told the Copeland story in succeeding issues as outlined below:

MT. CLEMENS, Mich., March 29—Control of Copeland Products, Inc., veteran manufacturer of electric refrigerators, is in the hands of a creditors' committee . . . The committee is holding meetings regularly with a view of reorganization of the company.

April 5—Copeland Products, Inc., is not quitting or going into receivership but will continue to carry on, according to C. W. Hadden, one of the committee of five old-timers who are operating the business under the direction of a group of friendly creditors.

April 26—George Bright, nationally known refrigeration engineer, was in charge of Copeland Products, Inc., for two days—Saturday the 22nd and Sunday the 23rd—when he was appointed temporary receiver for the concern pending the hearing on Monday. The petition for receivership was quashed by the court on that day.

June 7—Paul Deming, a newcomer in the field of electric refrigeration, was elected chairman of the board of directors and president of Copeland Products, Inc., at a meeting of the new board of directors here yesterday.

Aug. 23—All properties of Copeland Products, Inc., including accounts receivable, merchandise inventory, machinery and equipment, good will, and all other assets excepting real estate will be placed on open sale at the plant here at 11 a. m. Friday, Aug. 25, according to a statement made today by A. C. Flood, trustee who will conduct the sale.

Sept. 6—Copeland Products, Inc., has been purchased in its entirety by the Winslow-Baker-Meyering Corp. of Detroit, according to A. C. Flood, trustee for the creditors' committee which has had control of the Copeland company for the last several months.

Nov. 22—Copeland Refrigeration Corp., successor to Copeland Products, Inc., will continue to operate as a manufacturer of commercial and household electric refrigeration systems, according to E. A. Costa, who has been assigned to manage the plant here by the Winslow-Baker-Meyering Co., industrial and refinancing firm of Detroit, which purchased Copeland Products, Inc., as a going concern in September.

Another well-known manufacturer which quit the refrigeration industry in 1933 was Tennessee Furniture Corp., one-time Nema member. In November F. A. Shipley of the company's sales department announced that the entire stock of Cavalier electric refrigerators had been disposed of and that the company had given up the manufacture of complete electric refrigerators.

Big news not only in refrigeration but in radio was the late November announcement of Grigsby-Grunow's receivership.

B. J. Grigsby, president and chairman of the board, issued a statement coincident with the receivership announcement (Nov. 29) attributing the company's difficulty "to the impossibility of carrying the burden of its fixed investment in plant and equipment on the volume of business and profit now obtainable."

Authorized to operate the organization as a going concern, LeRoi J. Williams, Grigsby-Grunow general manager, and Thomas L. Marshall, Chicago attorney, were named receivers.

A motion for the adjudication of the company as bankrupt was denied Dec. 23 by Federal Judge John P. Barnes.

Only two companies entered the electric refrigeration business this year.

Johnson Motor Co. of Waukegan, Ill., since 1921 manufacturer of outboard motors, organized a subsidiary around the first of the year to make Jomoco electric refrigerators.

To manufacture and sell a four-model line of refrigerators with a price range starting at $129.50, installed, the Los Angeles concern Gaffers & Sattler estabilshed a special department in May.

Under new companies also may be listed the merged General Household Utilities Co., formed in July by the junction of Grunow Corp. and United States Radio & Television Co. of Marion, Ind. The name "Grunow" was kept as the trade name of refrigerators and radios made by the new concern, and William C. Grunow remained as president.

Changes in name and address of other companies occurred this year. Grinnell Washing Machine Corp. announced June 7 that in the future the company would operate under the name of Grinnell Electrical Mfg. Co.

* * *

Expansion

At the end of the first quarter of 1933, when the orders, unbelievably, began to come in in ever-increasing numbers, manufacturers were caught in restricted circumstances—and expansion perforce began.

Gibson opened the old Belding-Hall plant in Belding, Mich., to take care of 24-hour production. Kelvinator began running a "Kelvinator Special" train which operated on the Pere Marquette lines daily to bring cabinets from the Grand Rapids factory to Detroit.

In a deal involving $1,000,000, General Motors purchased Sunlight Electric Co. of Warren, Ohio, manufacturer of fractional horsepower motors for refrigerators and other appliances.

It was not until September, however, that real expansion and plans for increased business in 1934 got underway.

Bastian-Blessing Co., manufacturer of soda fountains and beer-cooling equipment, reopened its Muskegon factory in the fall.

Recently, Westinghouse completed a hugh brick-and-steel warehouse in Mansfield for storage of refrigerators, ranges, and small appliances. It is being stocked to insure prompt deliveries to distributors during the coming season. Said Refrigeration Manager R. C. Cosgrove to Westinghouse field men late in September: "Next year, we'll build 150,000 refrigerators, and we're planning all our sales activities with an aim toward selling a minimum of 125,000."

Late in September, General Electric Co. announced formation of a new division in its specialty appliance sales department to concentrate its attention on building up retail sales. Dedicated to the progress of the intelligent use of electricity in American homes, the General Electric Institute was officially opened by Owen D. Young just before the end of the year.

To Norge Corp.'s Muskegon (Mich.) plant, a 10,000-sq. ft. addition is being made, and at the company's headquarters in Detroit, construction is nearing completion on a sizable extension of office space.

Eight weeks ago, Norge Sales Manager John H. Knapp announced that the company has set aside for 1934 the largest advertising appropriation in its history. In the last few months, it added a dozen or more men to its engineering staff, and set up a home service department.

Extension of the Electrolux plant of Servel, Inc., at Evansville, Ind., was started Nov. 1 to increase 1934 production facilities, and the Electrolux research laboratories, formerly located in New York City, are being moved to Evansville to speed up production activities. First of December, Servel opened a new lunchroom and recreation hall for its employes.

In November, General Household Utilities Co. acquired a third plant in Chicago—bringing the number of its plants to four.

The following month, William C. Grunow announced a $500,000 expansion program for the refrigeration division of General Household Utilities, approximately $400,000 of it to go into machinery to be used in the new cabinet plant, the rest to be used for plant addition and improvements.

Two commercial equipment manufacturers, also, began to plan for extension of their operations.

In San Antonio, the Ed. Friedrich Co. recently added a new porcelain plant to its factory, while the Allied Store Utilities Co. in St. Louis acquired a new building to increase its production facilities.

A number of manufacturers established branch offices during the fall of the year. In November, Bush Mfg. Co. of Hartford, Conn., opened a branch in New York City.

Fedders Mfg. Co. put a Chicago branch in operation. Young Spring & Wire Co., Detroit refrigerator shelf manufacturer, also started a Chicago branch several months ago. Another company to open a New York City branch recently was Allied Store Utilities Co.

To fabricate evaporators, Bush Mfg. Co. established an assembly plant in Chicago, while Liquid Carbonic Corp. opened a downtown sales office in the same city. Seeger's Chicago factory branch was moved to larger quarters, and General Electric Co. opened a showroom in the Merchandise Mart to display its electrical appliances.

What Happened In 1933

To summarize the news which was made by the refrigeration industry in 1933, a resume of the year's events, trends, and movements started last week, is continued this week, and will be continued in the next issue.

Outstanding performance in electrical refrigeration must be based on a service record extending over a period of years.

How successfully Universal Cooler products measure up to this standard is best attested by those who have used commercial and household electrical refrigeration as supplied by Universal Cooler since 1924.

UNIVERSAL COOLER CORPORATION
DETROIT, MICHIGAN — BRANTFORD, ONTARIO

MANUFACTURERS OF A COMPLETE LINE OF HOUSEHOLD AND COMMERCIAL REFRIGERATION EQUIPMENT

Potter Issues Study on Relation Between Refrigeration and Public Health

By Elston D. Herron

BUFFALO — Suggesting that perhaps the increased use of refrigeration during recent years has been an important factor in the improvement of public health, a set of charts has been prepared by the Potter Refrigerator Corp. here to aid its salesmen in winter selling.

Step by step, the charts show the lowering of the country's general mortality rate, coincident with the increasing use of ice; they record the switching of the mortality peak from summer to winter, as summer use of ice mounted; then indicate that *electric* refrigeration may have been instrumental in reducing death rates in both summer and winter, particularly the latter.

At a recent meeting of the Refrigeration Division of National Electrical Manufacturers Association, T. Irving Potter, president of the company bearing his name, presented these charts to the group, and was subsequently appointed chairman of a committee to make further studies of electric refrigeration's benefits to public health.

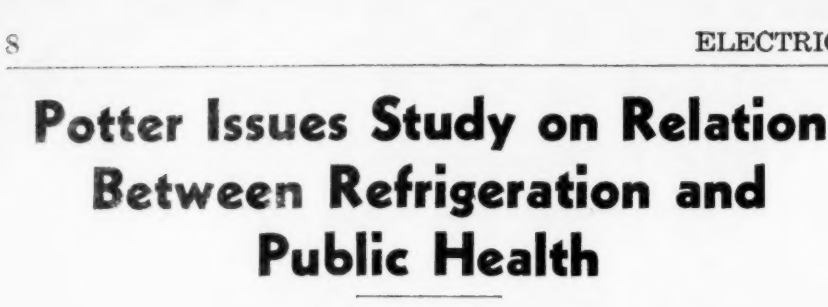

WHEN THIS HAPPENS RESISTANCE WINS
WHEN THIS HAPPENS DISEASE WINS
AT THIS POINT FOOD INFECTION WINS
(PTOMAINE)
AT THIS POINT TASTE & SMELL WARN
VITALITY "MARGIN OF RESISTANCE"
DISEASE GERMS
DISEASE GERMS
FOOD BACTERIA
RESISTANCE 100% HEALTH PERFECT
BACTERIAL GROWTH CUTS DOWN RESISTANCE LONG BEFORE ACTUAL SYMPTOMS APPEAR
RESISTANCE ZERO HEALTH GONE

Fig. 1—Bacterial growth vs. human resistance.

Chart No. 1 makes the point that "improperly kept food endangers health in three ways." First, the food may carry actual disease germs. Second, it may cause food poisoning (ptomaine) through chemical poisons created by bacterial activity in the food. Third, it may increase susceptibility to disease by reducing bodily resistance (through cause No. 2).

Illustrating these points is a drawing which is reproduced here (Fig. 1). When a person's health is perfect, his resistance is sufficiently great to overcome the effect of disease germs in his food, so long as the bacterial count is kept low enough to hold the harmful germs below one's "margin of resistance," the picture shows.

But, if food is preserved so poorly that bacteria increase rapidly, the disease germs and bacteria *combined* enable disease to overcome a person's natural resistance. And when food is kept in an unprotected state long enough, bacteria will so multiply that they will poison the body without the aid of disease germs.

The illustration indicates that if a person consistently eats food that has been poorly preserved, the bacteria resulting from inferior preservation will reduce bodily resistance long before actual symptoms of this lowered resistance appear.

As a clincher, there is with this chart an excerpt from a bulletin prepared by the U. S. Department of Agriculture on care of food in the home.

It says in part: "Proper care of food in the home is necessary to healthful, economical living. It is wasteful to allow food to lose its attractive flavor or appearance; moreover, spoiled or infected food may be actually dangerous to health or even life . . . "

And at the bottom of the chart is this black-lettered sentence: "Refrigeration protects health by protecting food."

Caption of the manual's second chart is, "As the use of ice for protecting food has grown, the annual mortality rate has declined." Basis for this statement is a graph (Fig. 2) showing that from 1899 to 1932, sales of manufactured ice jumped from $13,303,874 to $210,952,264, while during that same period, the annual mortality rate dropped from 17 to 11 deaths per 1,000 persons.

Figures on ice sales were obtained from a 1931 report of the U. S. Department of Commerce, while those on mortality rates were secured from the U. S. Bureau of Census "Vital Statistics of 1929," says the manual.

Purpose of the folder's third chart is to explain and justify repeated use of mortality figures as a basis for tracing public health trends. It states that the only comprehensive nation-wide survey of illness is a report made March 24, 1933, by the U. S. Public Health Service, then says:

"Mortality statistics are the only records kept over a long period of time through which illness trends can be observed." This page does, however, quote from the health service report as follows:

"Considering all illnesses (sole or primary only), there was a total for the year of 850 per 1,000 persons under observation. The rate for illnesses that caused absence from work or school or other usual occupation for one or more days was 516, and for illnesses that caused the patient to go bed was 434 per 1,000 persons . . . "

For purposes of clarity, the figures from this extract are shown graphically at the side of the chart's text.

A reprint from a public health report issued by the U. S. Treasury Department Jan. 13, 1933, is the basis of the fourth chart in the series. Comprising it are two graphs showing seasonal distribution of deaths from all causes in Massachusetts from 1863 to 1870, and from 1920 to 1928.

In the 1863-70 graph, it is shown that mortality reached its lowest point in June during the seven-year period, and rose to its peak in August. The 1920-28 graph, however, indicates that during those eight years, mortality reached its peak in March, its lowest point in July.

The government report says this about the findings: "One of the visible modifications associated with the mortality trends which have been discussed is a shift in the seasonal distribution of disease. Formerly mortality was greatest in the summer; now it is greatest in the winter."

Declares the Potter manual: "Is this a coincidence or not? *Before* refrigeration was widely used, the peak of mortality was in the *summer*. As refrigeration became widely used, the peak of mortality shifted from summer to *winter*."

Next chart in the manual (Fig. 3) pictorializes these mortality trends in one graph, and shows in a second that about 70 per cent of ice sales are made between June 1 and Oct. 1, basing this latter estimate on a report of the American Ice Co. in the May issue of *Fortune*.

The chart comments below those graphs that "the reduction of the summer peak of mortality strangely coincides with the summer use of ice refrigeration."

Point made on the next page is that between 1913 and 1922, ice refrigeration sales (heaviest in summer) had their most rapid growth, while in that same period, "the most pronounced decline in the death rate . . . occurred during the summer months."

Two large graphs (Fig. 4) are used in this chart. First is based on figures released by the Department of Commerce and shows the trend of ice sales between 1899 and 1933, with the 1913-22 period spotlighted as the time of greatest increase (see arrow in top graph of Fig. 4).

Second shows the percentage of decline in the death rate among industrial policyholders, by quarters between 1913 and 1922, as computed by the Metropolitan Life Insurance Co. in April of 1923.

This graph indicates that the death rate in July, August, and September declined 30.3 per cent during the 10-year period (see arrow in bottom graph of Fig. 4) with spring and autumn next (26.6 per cent and 26.4 per cent, respectively), and the winter months lowest in mortality decline.

Published beside this graph is an excerpt from the insurance company's report which says, "It is of singular interest that the summer months . . . show not only the greatest *rate* of decline in mortality during the past 10 years, but they also register the minimum mortality rates of the year."

Slipped in as a reminder of the point made in the preceding chart is the *Fortune* graph showing that ice sales are very much at their peak during the months which showed the greatest decline in death rate.

Then comes, on the next page, a statement which serves as an introduction for charts comprising the remainder of the manual. It reads: "If the phenomenal improvement in the summer death rate is chiefly the result of summer ice refrigeration, year-'round *electric* refrigeration should show a similar effect on the winter death rate. Let's look at the record."

A simple graph (Fig. 5) showing the number of electric refrigerators in use in the United States during three four-year periods from 1921 to June of 1933 is the eye-catcher on the chart which follows.

Between 1921 and 1925, less than 20,000 refrigerators were in use, the graph shows. From 1925 to 1929, 750,000 were in use, while in the period from July of 1929 to June of 1933, the number was 3,500,000.

Concludes Potter under this graph: "The four years (July 1929 to June 1933 inclusive) comprise the *first* period in which electric refrigeration could possibly affect *national* mortality figures."

Having made this suggestion, coupled with the earlier statement that electric refrigeration *should* improve the winter mortality rate, the manual presents a graph (Fig. 6) showing mortality curves (average) for 1921-24 and 1929-33.

Charted from statistics compiled by the Metropolitan Life Insurance Co., this graph indicates that the 1929-1933 mortality peak, reached in March, is slightly less than 10 persons per 1,000, while the 1921-24 peak, also in March, was almost 11.5 persons per 1,000. Throughout *all* months of the year, the 1929-33 curve falls below that for the earlier period.

On the basis of these curves, the manual puts forth still another potent inquiry: "Is this definite reduction of the winter death rate merely another coincidence, or the positive result of a positive cause?"

"After all," observes the next page, "the nation's mortality rate is simply the reflection of the average state of health of 30,000,000 families. Your family's health will be above or below the average."

Next chart packs a punch. Center of attraction is another graph with a heavy black curve showing the nation's present mortality rate by months. Above it is a dotted line indicating the "average of 15 million families whose death rate is above the national average." Below it is another dotted curve indicating the "average of 15 million families whose death rate is below the average."

Text accompanying these curves says: "You can't escape a decision. Either you decide *negatively* and *neglect* sensible precautions to prevent illness, thereby inviting a higher-than-average illness rate for your family, or you decide *positively* and *use* sensible precautions to prevent illness, thereby inviting a lower-than-average illness rate for your family. In which group do you place *your* family?"

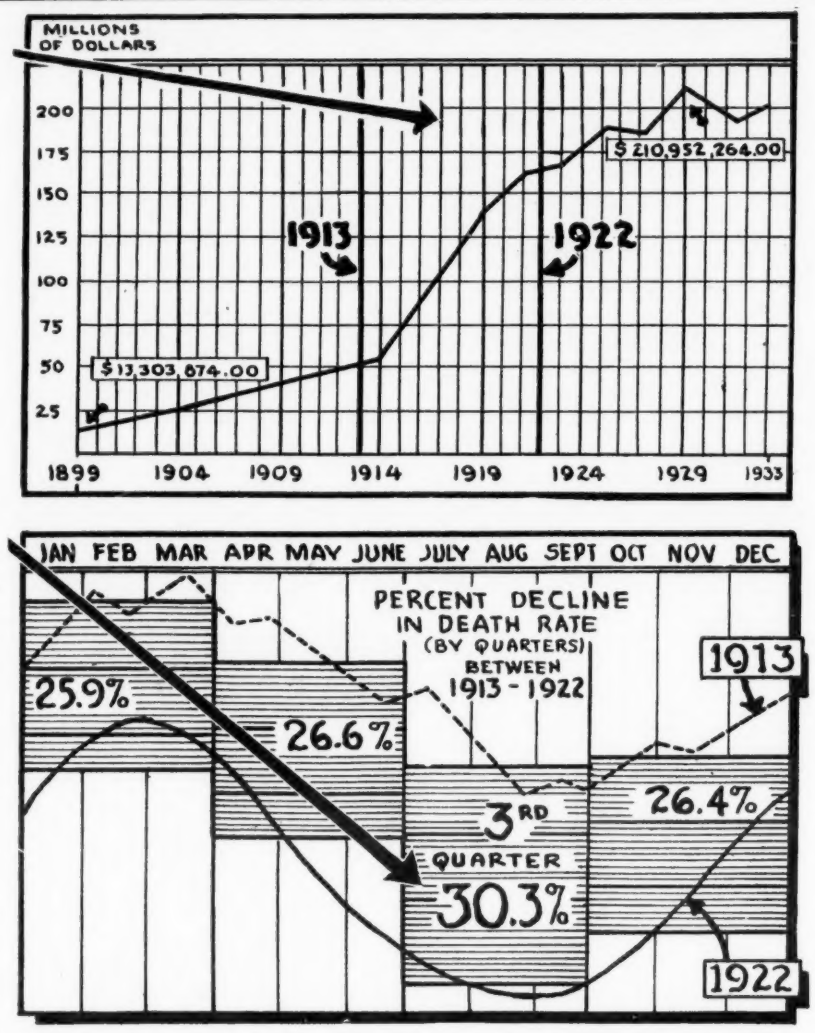


Fig. 4—Top graph shows period of greatest increase in ice sales.

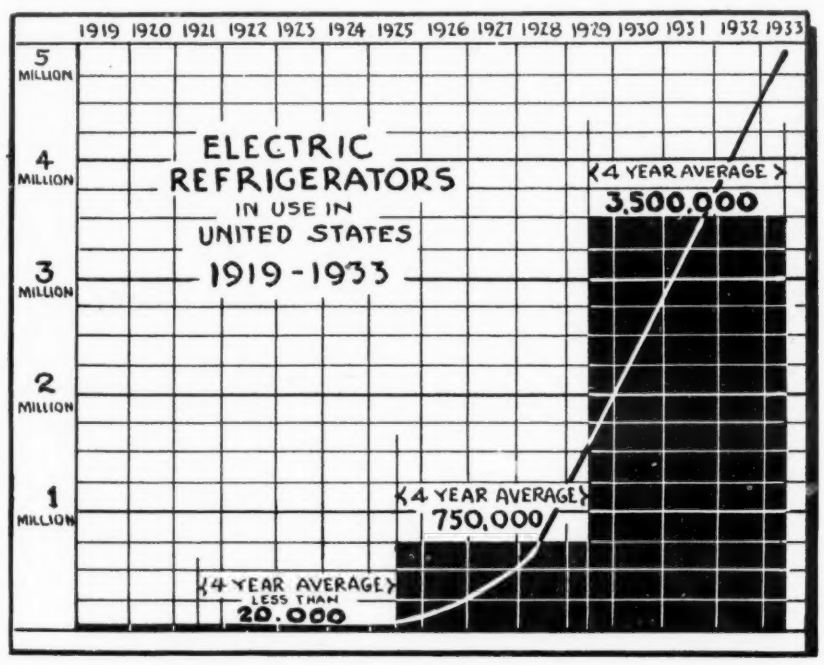

1919 1920 1921 1922 1923 1924 1925 1926 1927 1928 1929 1930 1931 1932 1933
5 MILLION
4 MILLION
3 MILLION
2 MILLION
1 MILLION
ELECTRIC REFRIGERATORS IN USE IN UNITED STATES 1919-1933
4 YEAR AVERAGE 3,500,000
4 YEAR AVERAGE 750,000
4 YEAR AVERAGE LESS THAN 20,000

Fig. 5—Refrigerators in use over three four-year periods.

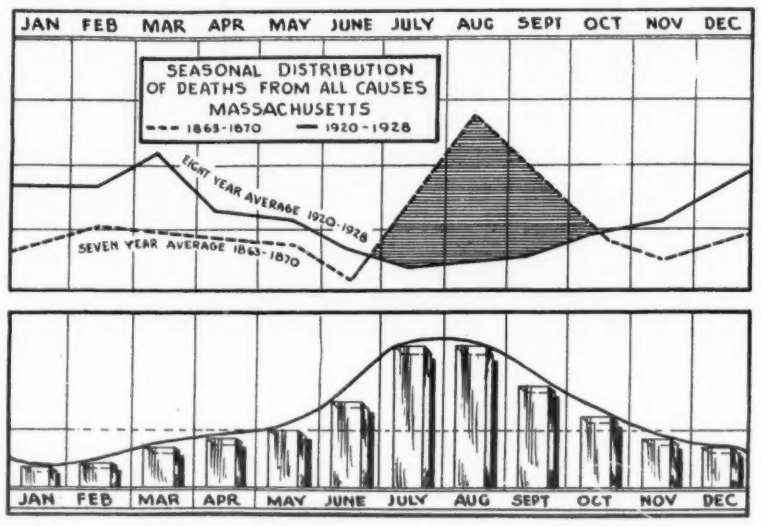

JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC
SEASONAL DISTRIBUTION OF DEATHS FROM ALL CAUSES MASSACHUSETTS
1863-1870
1920-1928
EIGHT YEAR AVERAGE 1920-1928
SEVEN YEAR AVERAGE 1863-1870
JAN FEB MAR APR MAY JUNE JULY AUG SEPT OCT NOV DEC

Fig. 3—Summer-to-winter mortality shift, and curve of one year's ice sales.

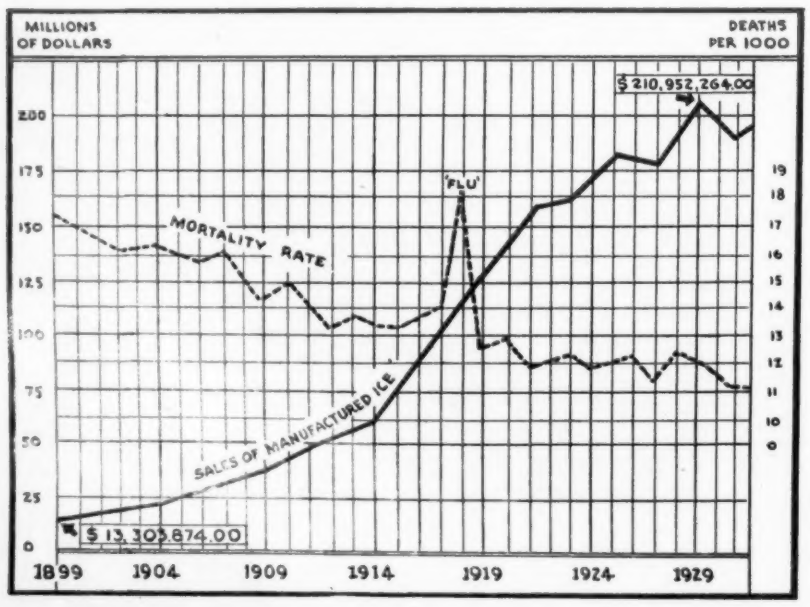


Fig. 2—Mortality and ice sales curves for 33 years.

Foreign Market for Air Conditioning Improves

DAYTON—M. Andre Delalande of Algiers, and M. E. T. Chepou of Paris, France, who have been visiting the Frigidaire plant here, report an increasing interest in air conditioning in their countries.

M. Delalande, who is sales engineer for A. Lemoyne Ste. Algerienne de Refrigeration Electrique, Frigidaire distributor for Algeria, stated that Frigidaire air conditioning had been installed in the Algiers radio station and in two leading night clubs, both of which now operate throughout the year instead of only seasonally as in the past.

Electric refrigeration is being used extensively in the cooling of beer in northern Africa, said M. Delalande.

Last page shows three refrigerators —two electrics (one a Potter) and an ice box. Concluding appeal: "Decide *positively* now to safeguard the health of your family with adequate year-'round refrigeration."

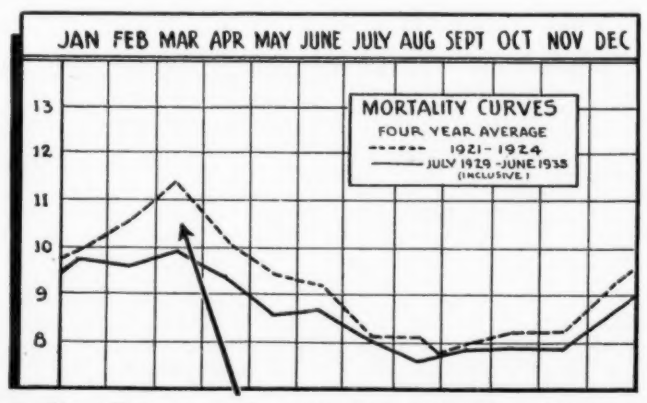


Fig. 6—Mortality curves for 1921-1924 and July 1929-June 1933.

SERVICE NOTES

By K. M. Newcum

A SUDDEN cold spell starts the service telephones ringing, like that of a sudden hot spell. The nature of the calls in some respects are similar to those received in the summer, but the actual condition is far different.

A very usual call that comes in during the extreme cold weather is that "the box temperature is high, and the machine does not run." It will be found, excepting mechanical difficulties, that such cases are usually due to the compressor being subjected to a cold temperature, i.e. being located in a cold basement or similar location, while the refrigerator is located in a warmer temperature.

This condition is liable to develop in a system controlled by a low-pressure control, or where a thermostat is used and the power element of the thermostat is located in a cold place.

Setting of Controls

Pressure controls, as well as thermostat controls used on the usual type of commercial installation are so adjusted that the machine is on an off cycle long enough to allow the evaporators to defrost. In other words the controls are set for a defrosting cycle. Due to the heavy demand, heat leakage, and other conditions encountered in the summer, the control is set to the highest possible cut-in point.

For example the average SO_2 commercial installation is set to cut in around 10 lbs. back pressure, and the methyl chloride job is set to cut in around 25 lbs.

It is usually found that these settings will result in a refrigerator temperature of 38 to 42° F., which in most cases, allows the coils to defrost on the off cycle. During the warm months the controls are subjected to normal conditions, and function normally.

Operates on Shorter Cycles

As the cold weather comes along, the demand on the refrigerator is considerably less. The compressor operates on a shorter on cycle, and a longer off cycle. If the basement is not heated, and the weather is extremely cold, the return vapor from the evaporators has a tendency to settle in the compressor, and return lines, for their temperature is considerably colder than the evaporator on the off cycle.

This settling of the return gas affects operation of the low-pressure control. It has been found that where the compressor and control are in an unheated basement, the return gas, actually condenses in the crankcase of ths compressor, and does not build up sufficiently high a back pressure to cause the switch to cut in. The compressor remains off and the refrigerator temperature may rise several degrees higher than normal.

Correction of Trouble

To cure this trouble, it is necessary to correct the condition effecting the controls. The compressor may be moved from the cold, unheated basement to a warmer location, or heat may be supplied to the compressor location.

Often the puzzled customer will not listen to this expensive move, for he cannot understand why his machine will not start and stop in the winter just as it did in the summer.

The only recourse the service man has then is to lower the cut-in point on the control below that of the summer setting, sufficiently to compensate for the temperatures encountered. Often it is necessary to lower the cut-in point several pounds.

The best way to determine the cut-in point necessary in such cases, is to attach the compound gauge to the machine after it has been off for an excessive length of time. Check the prevailing pressure. Set the cut-in point about 1 lb. lower than the present gauge reading, and the switch should function correctly under such conditions.

Needless to say, these adjustments will have to be changed back to their original summer settings when the cold weather is over, for short cycling and icing of the coils will result if the lower cut-in point is used during normal conditions.

It will be found that the lower setting will not materially effect the refrigerator temperature. The change is only made to assure the functioning during extremely cold weather.

Location of the thermostatic control, should the system be of this type, is important under such conditions, for if the power element is subjected to colder conditions, i.e. a lower temperature than the thermostatic bulb in the refrigerator, the thermostatic liquid will leave the bulb and collect in the power element.

When this condition exists the thermostat is actually controlling the basement temperature, rather than the refrigerator temperature, and as the basement is cold the thermostat will not cut in at normal refrigerator temperatures. The thermostat should be moved to a warmer location. If this is impossible, then like the low-pressure control, the cut-in point will have to be lowered to obtain the desired refrigerator temperature.

New Cooling System For Fish Described

NEW YORK CITY—Description of his recently introduced display case for preservation of fish in an unfrozen condition was given by H. L. Forman of the Seeger Refrigerator & Sales Corp. here when he addressed a recent meeting of the New York chapter of the National Association of Practical Refrigerating Engineers.

In appearance, he said, the case is similar to electrically refrigerated display cases of conventional design. Direct expansion coils are used, their surface area being equal to that of the refrigerator's exterior.

Feature of the case is a series of perforated pipes through which cold water is sprayed on the fish. The spray is intermittent, timing being regulated by a clock device in the case. This, said Mr. Forman, is better than a covering of ice, as the latter does not contact all parts of the fish.

At this meeting, a $50 prize was awarded the New York chapter by the national association for the former's preparation of the best set of answers to technical problems presented by the national organization during 1933.

Presentation of the award was made by Vice President Martin Vander Veer of New Haven, Conn., to Paul D. Lehman, president of the New York section. Secretary-Treasurer Charles H. Herter, in submitting his report of the chapter's 1933 activities, stated that it has increased its membership 20 per cent during the past 12 months.

Prof. Fink Will Receive Chemical Society Medal

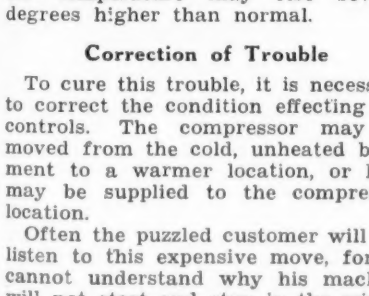
NEW YORK CITY—The Perkin Medal of the Society of Chemical Industry will be presented to Prof. Colin G. Fink of Columbia university at a meeting to be held at 7:30 p. m. Friday night, Jan. 5, at the Chemists' club here.

This meeting will be held jointly with other chemical societies in New York.

Prof. Harold Hibbert of McGill university will give a short talk on the subject of the medalist and his accomplishments, and Prof. Marston T. Bogert of Columbia university will make the presentation. Dr. Fink will present an address entitled "Chemistry and Art."

Enclosed Capacitor Motor Built by G-E

SCHENECTADY, N. Y.—A totally enclosed non-inflammable capacitor has been announced by General Electric Co. for use in dusty atmospheres. The dust-tight capacitor is intended not only for plants such as grain mills where dust is prevalent but for textile mills where lint has been troublesome in the past. This new capacitor is created and filled with Pyranol, a non-inflammable material with high insulating and dielectric properties.



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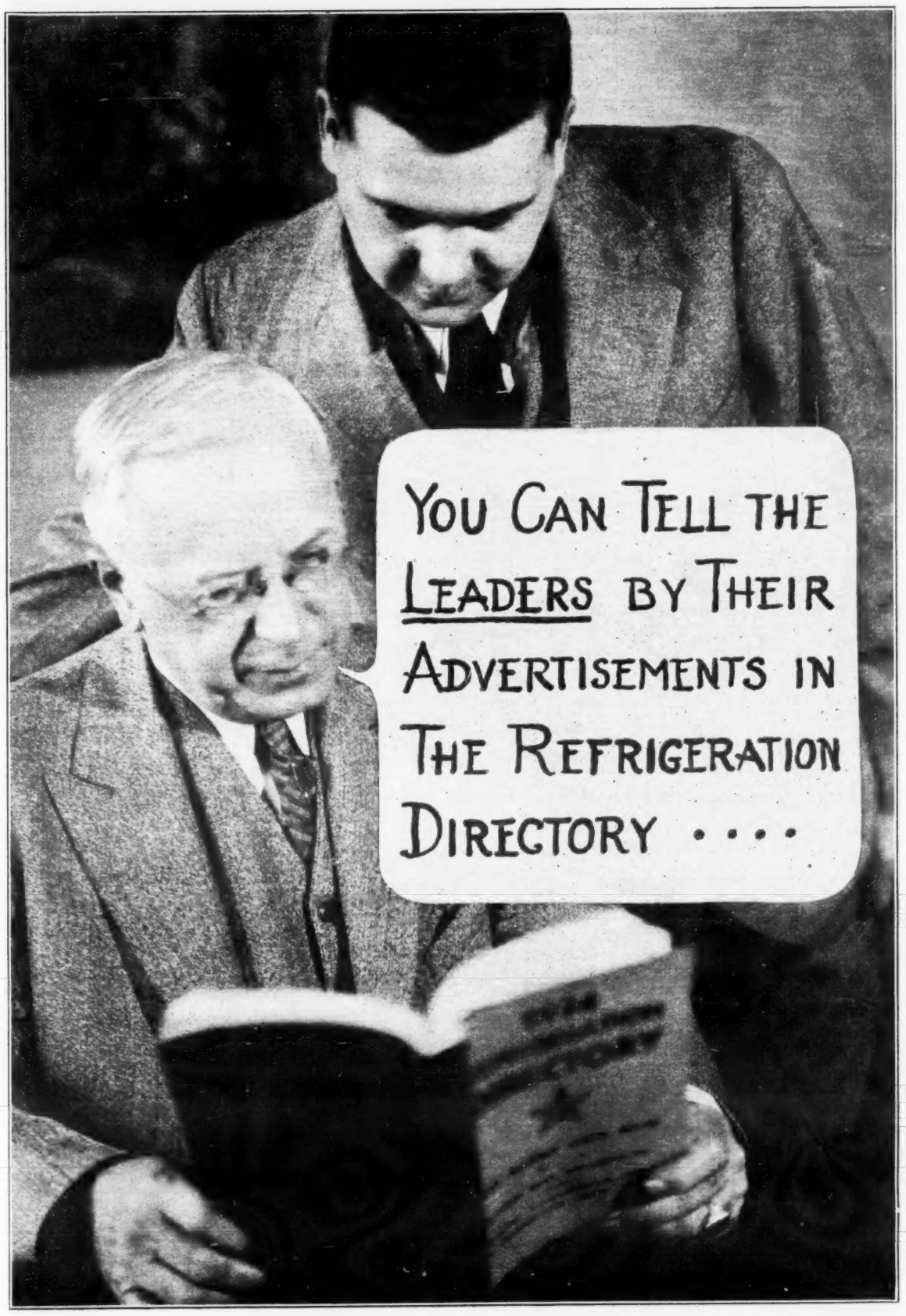

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PATENTS

Issued Dec. 19, 1933

1,939,694. SULPHUR DIOXIDE PROCESS. Rudolph Leonard Hasche, Elizabeth, N. J., assignor to American Smelting & Refining Co., New York, N. Y., a corporation of New Jersey. Application Oct. 11, 1928, Serial No. 311,719. Renewed May 26, 1933. 7 Claims. (Cl. 183—115.)

7. The process of separating sulphur dioxide from furnace gases which comprises compressing said gases and passing the same through a bed of suitable absorbent material whereby said bed preferentially adsorbs moisture from said gases, cooling said gases by expansion with the production of external work to approximately the solidification temperature of sulphur dioxide whereby a substantial amount thereof becomes liquefied, removing the liquefied constituent and utilizing the stripped gases as the sole refrigerant in the above mentioned cooling operation.

1,939,695. REFRIGERATION SYSTEM. Rudolph Leonard Hasche, Red Bank, N. J., assignor to American Smelting & Refining Co., New York, N. Y., a corporation of New Jersey. Application Nov. 26, 1930, Serial No. 498,222. Renewed Sept. 15, 1933. 13 Claims. (Cl. 62—123.)

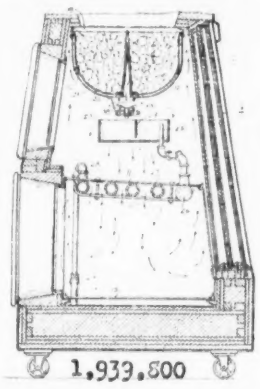
1. In a refrigeration system, a heat exchanger having means therein to collect a liquefied constituent under high pressure, an expanding engine for receiving gases after being passed through said exchanger and causing adiabatic expansion thereof to a low pressure, means for collecting a liquefied constituent at said low pressure, a reservoir adapted to receive said liquefied constituent from said exchanger and from said collecting means, and means for applying high pressure to said last mentioned collecting means to permit the liquid therein to be discharged into said reservoir.

1,939,696. SEPARATION OF GASES. Rudolph Leonard Hasche, Red Bank, N. J., assignor to American Smelting & Refining Co., New York, N. Y., a corporation of New Jersey. Application Jan. 21, 1931. Serial No. 510,154. Renewed March 10, 1933. 10 Claims. (Cl. 183—115.)

7. A process for recovery of a constituent from a gas mixture which comprises compressing said mixture and drying the same, dividing the compressed mixture into two parts, cooling one of said parts by heat interchange at a temperature at which a portion of said constituent is liquefied, removing the liquefied portion, expanding the stripped gases and utilizing the same as a source of refrigeration for said part, cooling the other of said parts by heat interchange to a temperature at which a portion of said constituent is liquefied, removing said liquefied portion, continuing the cooling of said other part by expansion to a temperature at which a further quantity of said constituent is liquefied, removing said liquefied constituent and utilizing the stripped gases as a source of refrigeration in one of said heat interchange steps.

1,939,800. DISPLAY REFRIGERATOR. Virgil P. Warren, Atlanta, Ga. Application July 9, 1932. Serial No. 621,700. 3 Claims. (Cl. 62—37.1.)

1. Refrigerator comprising walls forming a chamber, an ice tank extending longitudinally in the upper part of said chamber having an air eduction slot in its bottom



remote from said walls, a screen partition upstanding in said tank and bridging said slot, a drain trough beneath said slot, said tank being arranged in a focal position to determine an air circulation upward adjacent said walls, over and through the ice in the ice tank through said screen partition, and down through said eduction opening, said drain trough spanning the width of said eduction opening and functioning as a baffle to divide the downward air circulation, in effect increasing the width of the air current, a settling basin into which said trough discharges, and a coil receiving the discharge from said settling basin and conducting it circuitously in a substantially transverse plane through said chamber.

1,939,914. REFRIGERATOR CONSTRUCTION. Roland H. Money, Cincinnati, Ohio, assignor to The Crosley Radio Corp., Cincinnati, Ohio, a corporation of Ohio. Application July 26, 1930. Serial No. 470,915. 2 Claims. (Cl. 211—153.)

1. A shelf comprising bars, and wires with their ends rigidly secured to the bars at intervals therealong, each bar having an end part bent at right angles to its main intermediate part and extending toward the bent end part of the other bar, said bent end portions being adapted to rest on an elongated ledge, the opposite end parts of said bars being bent upward from said main intermediate part and having hooks on their upper ends to engage a more upwardly located shelf, and wires with their ends secured to said upwardly bent parts, forming a wall on the shelf.

1,939,937. BRINE FOR THE TRANSMISSION OF HEAT AND COLD. Fritz Werner, Leipzig, Germany. No Drawing. Application Dec. 31, 1931, Serial No. 584,281, and in Germany Jan. 6, 1931. 4 Claims. (Cl. 252—5.)

1. A brine for the transmission of heat and cold containing water-insoluble adsorbents in fine and uniform dispersion.

2. A brine for the transmission of heat and cold containing water-insoluble carbons in fine and uniform dispersion.

1,939,957. METHOD AND IMPROVED MEANS FOR PRECOOLING REFRIGERATOR CARS. Fred J. Day, Los Angeles, Calif. Application Nov. 30, 1931. Serial No. 578,056. 12 Claims. (Cl. 98—7.)

1. In a refrigerator car, an ice bunker having a hatch opening in the top thereof, a bunker board provided with an aperture openable to the outside air adapted to close said hatch opening, means supported by said board subjacent to said aperture to entrain outside air downwardly thru said aperture into said bunker and to exhaust inside air thru said aperture outside said bunker, the support for said means extending thru said board and being manually regulative exteriorly of the car.

1,940,109. ICE CREAM AND PROCESS OF MAKING THE SAME. Clarence W. Vogt, Louisville, Ky., assignor to Vogt Instant Freezers, Inc., Louisville, Ky., a corporation of Delaware. No Drawing. Application Dec. 16, 1929. Serial No. 414,567. 4 Claims. (Cl. 99—16.)

1. In the process of making ice cream the steps which include agitating a layer of aerated mix in contact with a heat transfer surface, and withdrawing heat through said surface at such a rate that over 30 per cent of the water content of the mix is frozen in less than one minute whereby the volume and size of the ice crystals are such that the intercrystal spaces are of a magnitude that does not permit the forming of detectable crystals from the solids in solution in said intercrystal spaces during the hardening and storage.

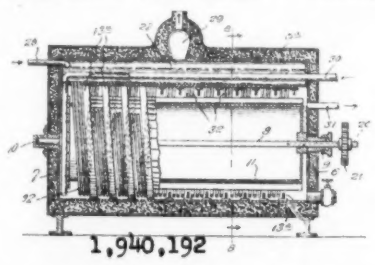
4. An ice cream partially frozen and adapted to be hardened and containing air to at least one-third its volume and having over 30 per cent of the water frozen into crystals of such size that the intercrystal spaces do not contain a sufficient volume of solution of solids as will permit the forming, during commercial hardening, of crystals of said solids of a size detectable by the tongue during the eating of the ice cream.

1,940,164. APPARATUS FOR AND PROCESS OF FREEZING COMESTIBLES. William T. Comer, Atlanta, Ga., assignor to Crystal Carbonic Laboratory, Atlanta, Ga., a corporation of Georgia. Application July 17, 1931. Serial No. 551,509. 4 Claims. (Cl. 62—91.5.)

1. Apparatus for freezing material comprising, in combination, a closed freezing chamber having an opening, conveying means for passing material to be frozen into and out of said chamber through said opening, means to enclose a refrigerating space in direct heat exchanging relation with a wall of said chamber, means to form and continuously renew a supply of carbon dioxide snow in said space to freeze material carried into and out of said chamber by said conveying means.

1,940,192. APPARATUS FOR FREEZING CANNED GOODS. Daniel G. Sorber, El Monte, Calif. Application Nov. 9, 1931. Serial No. 573,973. 8 Claims. (Cl. 62—104.)

2. An apparatus for freezing canned goods comprising a substantially closed heat-insulated tank having a relatively



deep refrigerant bath therein and provided with an inlet and an outlet for the refrigerant at opposite ends thereof whereby the refrigerant will flow lengthwise of the tank, and means including a can carrier within said tank for moving a continuous series of the cans lengthwise of the tank through said refrigerant bath and below the level of the latter in a direction opposite to the flow of said refrigerant through said tank.

1,940,194. METHOD OF MANUFACTURING FROZEN FOOD PRODUCTS. Grover D. Turnbow, Oakland, Calif. Application May 6, 1932. Serial No. 609,749. 6 Claims. (Cl. 62—173.)

1. The method of manufacturing frozen food products having a predetermined volume of a gas such as air incorporated therein, which consists in supplying the constituents to be frozen, partially freezing said constituents, whipping said constituents in the presence of gas to incorporate the gas therein, the extent to which the mixture is frozen being maintained at a predetermined point, while whipping, said predetermined point being such that the predetermined quantity of gas only is retained in the mixture upon completion of the whipping, notwithstanding the presence of excess gas and independently of the duration of the whipping period.

1,940,235. REFRIGERATING SYSTEM. George E. Adams, Spokane, Wash., assignor of one-half to Charles McCoy, Spokane, Wash. Application July 29, 1932. Serial No. 626,052. 6 Claims. (Cl. 62—101.)

3. The combination with a tank having separate compartments and a gate therebetween, of an elevated coil having terminals located in extensions of the compartments projecting below the bottom of the tank, and means for producting suction in the coil to initiate a priming flow of liquid from the tank to the elevated coil.

1,940,267. ELECTRIC SWITCH. Fred H. Osborne, Chicago, Ill., assignor, by mesne assignments, to Grigsby-Grunow Co., a corporation of Illinois. Application Oct. 31, 1930. Serial No. 492,425. 12 Claims. (Cl. 200—140.)

1. An electric switch comprising a supporting housing, a sylphon bellows supported in said housing, a member mounted on said housing, means operatively associating the free end of said sylphon bellows with said member whereby said member has only two positions of stable equilibrium and intermediate positions of unstable equilibrium, in said means adapted to transmit movements of said bellows to said members, an additional member mounted in said housing so that it has two positions of stable equilibrium with intermediate positions of unstable equilibrium, electric contacts adapted to be opened and closed associated with said second member, and a lost motion connection between said first and second members for transmitting motion from said first to said second member.

1,940,337. METHOD OF PRESERVING PERISHABLE FOOD PRODUCTS. Stanley F. Triplett and John B. Beard, Modesto, Calif. Application Sept. 25, 1931. Serial No. 565,082. 7 Claims. (Cl. 62—170.)

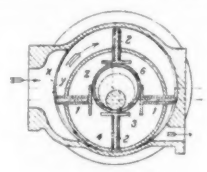
1. The method of preserving fruits and like perishable food products consisting in treating such products to cause the juice thereof to be exuded therefrom, retaining such juices in surrounding and covering relation to the products and then freezing the juices.

1,940,347. REFRIGERATION SYSTEM WITH MULTIPLE IMPELLERS AND SHELL EVAPORATORS. Norman H. Gay, Los Angeles, Calif. Application Jan. 15, 1932. Serial No. 586,928. 9 Claims. (Cl. 62—160.)

1. In a refrigeration system operating with a circulating heat-exchange medium, a heat-yielding element, a heat-absorbing element, first impeller means for establishing a circulation of the medium over said heat-yielding element, second impeller means for passing a part of the circulating medium over said heat-absorbing element, and a by-pass for the remaining part of the circulating medium around the heat-absorbing element.

1,940,384. ROTARY COMPRESSOR. Arnold Zoller, Berlin, Germany. Application April 18, 1928, Serial No. 271,035, and in Germany May 7, 1927. Renewed April 5, 1932. 3 Claims. (Cl. 230—153.)

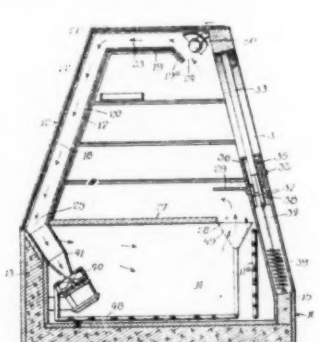
1. A rotary compressor of the character described comprising a casing having a conchoidal bore, a rotary drum arranged



eccentrically within said casing, four equally spaced vanes guided in and carried diametrally through said drum for cooperation with the casing, centrally disposed, circular guides on the casing, octagonal rollers rotatably mounted on the guides, and shoes on the vanes slidably supporting the latter on said collars, said vanes having webs passing through the center of said drum, said webs provided with mating cut-out portions centrally located therein, for permitting relative movement of said vanes.

1,940,473. APPARATUS FOR PROCESSING CONTROL. Clarence W. Vogt, Louisville, Ky., assignor to Vogt Instant Freezers, Inc., a corporation of Kentucky. Application July 5, 1929. Serial No. 376,260. 18 Claims. (Cl. 62—114.)

1. An apparatus for processing material, including means for agitating said material, an electric motor for driving said agitating means, mechanism for supplying a state changing medium, and mechanism for reducing and increasing the flow of said medium operable in response to the amount of electrical current required by said motor.

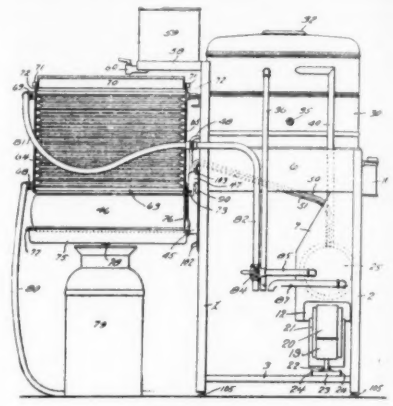


1,940,515. REFRIGERATED DISPLAY COUNTER. Fritz R. Sundling, Carl Fredberg, and Hugo Fredberg, Chicago, Ill. Application April 7, 1930. Serial No. 442,134. 7. Claims. (Cl. 62—89.5.)

1. A refrigerated display counter having a hollow base providing a cooling chamber, cooling means in said cooling chamber, walls defining a display chamber above said base, the rear wall of said display chamber having a door therein, and the top and forward walls of said chamber being formed by spaced plates of glass to provide a passage therebetween, the inner plate of said top wall terminating short of said rear wall to provide an inlet opening for the air from said display chamber, means providing an outlet from the lower forward end of said passage into said cooling chamber, a motor operated fan for inducing circulation in said passage from the inlet opening to the said outlet opening, and a control switch for said motor operable to start said motor when said door is opened.

1,940,621. MILK COOLER. Lee S. Chadwick, Shaker Heights Village, Marc Resek, Cleveland Heights, and Clarence T. Sorensen, Lakewood Ohio, assignors to Perfection Stove Co., Cleveland, Ohio, a corporation of Ohio. Application June 27, 1929. Serial No. 374,058. 19 Claims. (Cl. 62—141.)

3. In a milk cooler, the combination of a supporting structure, artificial refrigeration apparatus sustained thereby with the evaporator of the apparatus projecting laterally from the structure, said evaporator being in the nature of an elongated vessel, an aerator or precooler supported



by the structure above the evaporator and arranged to deliver milk thereto substantially throughout its length, and means for adjusting the aerator or precooler with respect to the structure so that its delivery end may be disposed horizontally.

1,940,640. REFRIGERATING APPARATUS. John T. Rauen, Dayton, Ohio, assignor to Frigidaire Corp., Dayton, Ohio, a corporation of Delaware. Application Nov. 28, 1928. Serial No. 322,440. 2 Claims. (Cl. 20—35.)

1. A refrigerator cabinet having a door opening therein and a door jamb surrounding the door opening, a door having an insulating portion loosely fitting into said opening and having a flange portion extending around said portion fitting into the opening, said flange portion covering a portion of the outer side of the door jamb when the door is in closed position, a keeper mounted on the outer side of said door jamb beneath the protruding flange portion to cover the keeper, said flange being provided with a recess for receiving the keeper, a latch mechanism concealed within a shallow covered cavity adjacent the front face of the door, an operating handle projecting from the front face of the door and operatively connected to said latch mechanism, said latch mechanism having a concealed bolt with an end portion extending into said recess beneath said flange for engagement with said keeper.

1,940,655. REFRIGERATING APPARATUS. Hugh Wallace and William C. Holbrook, Dayton, Ohio, assignors to Frigidaire Corp., Dayton, Ohio, a corporation of Delaware. Application Dec. 31, 1929. Serial No. 417,701. 12 Claims. (Cl. 20—35.)

1. A door for a refrigerator comprising in combination a frame, a pan on one side of said frame, said pan having an inwardly directed flanged edge, and a hook-shaped member engaging said edge for champing said pan to said frame.

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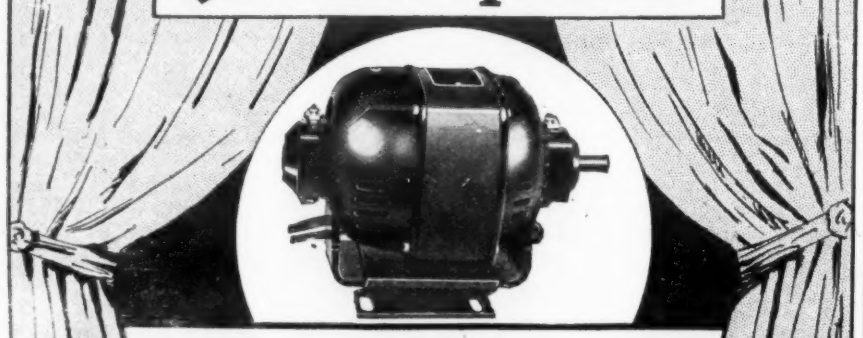

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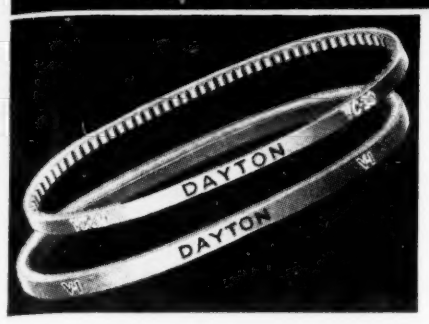

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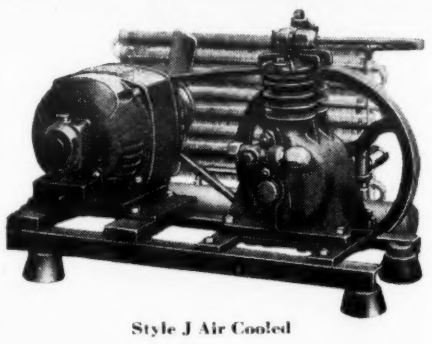

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QUESTIONS

Help Wanted on Display Case Coils

No. 1465 (Installation engineer, New York)—"Several of my customers have complained of a peculiar condition of the coils in their showcases. The condition seems to be that the evaporator tubes are covered with a grayish powder which falls off and is liable to drop on the meats.

"I shall appreciate any advice which subscribers of ELECTRIC REFRIGERATION NEWS can give on how to rectify this condition, or explain why it happens."

Addresses

No. 1466 (Distributor, Florida)—"Kindly give us the address of Stewart-Warner and of Universal Cooler Corp."

Answer—Stewart-Warner Corp. is located at 1826 Diversey Parkway, Chicago, Ill.; Universal Cooler Corp. is at 7424 Melville Ave., Detroit, Mich.

Export Business

No. 1467 (Washington)—"I am representing a large and influential Chinese firm which is building household electric refrigerators in China, and buying many of the parts needed for their product. They need sylphon seals for crankshafts, bellows assemblies for pressure type expansion valves, and all kinds of fittings such as elbows, tees, nuts, tube benders, tube cutters, flaring tools, door seals, etc.

"Could you put me in touch with people handling such equipment who would be interested in export shipments which would probably run into considerable volume, and which will be bought for cash with order?

"There is also another question I would like to ask. The writer has been asked by a number of independent service men in the Pacific Northwest to open up a refrigerator part business, and I am very much interested in doing so, and would like to get in touch with firms supplying gases, tubing, fittings, coils, and all other items used by service men.

"The time is ripe for such a move here, and I have the knowledge and acquaintance, I believe, to put this over. I was connected with Frigidaire for six years here on the Pacific Coast, and have many friends in the refrigeration business."

Answer—In the REFRIGERATION DIRECTORY AND MARKET DATA BOOK you will find lists of all known American makers of parts and materials for both manufacture and service of electric refrigerators.

Parts manufacturers interested in communicating with this party may secure his name by writing to the NEWS, mentioning Question 1467.

Statistics on Air Conditioners

No. 1468 (Financial consultants, Illinois)—"We are seeking data on annual sales in dollars and units of electrically refrigerated air-cooling installations for the past several years. I believe your paper occasionally publishes figures of air-conditioning installations for short periods. If these data are assembled for one or more years, and are available to us, we would appreciate your sending it to us."

Answer—Sales figures on refrigerated air-conditioning installations have been reported only for the companies holding membership in the National Electrical Manufacturers Association. The Nema figures on room coolers will be summarized in the forthcoming edition of the 1934 REFRIGERATION DIRECTORY AND MARKET DATA BOOK.

Bellows

No. 1469 (Dealer, New Jersey)—"Can you advise us where we can purchase bellows such as those used in the manufacture of compressor seals? These are not to be used for shaft seals, however, what we want is a manufacturer or wholesaler of bellows in all sizes."

Answer—The following firms make bellows:

Bishop & Babcock Mfg. Co.
4901 Hamilton Ave. N. E., Cleveland, Ohio.
Bridgeport Brass Co.
778 E. Main St., Bridgeport, Conn.
Clifford Mfg. Co.
564 E. First St., Boston, Mass.
Fulton Sylphon Co., Knoxville, Tenn.

Paper Insulation

No. 1470 (Virginia)—"We are desirous of obtaining samples and information regarding 'Thermocraft' insulation. We understand this insulation is used in electric refrigerators.

"Any information you can give us concerning the addresses and manufacturers of this product will be greatly appreciated."

Answer—"Thermocraft" is the trade name used by General Electric to designate the corrugated paper insulation used in G-E household refrigerators.

Manufacturers of such insulation are listed herewith:

Container Corp. of America
111 W. Washington St., Chicago, Ill.
Detroit Paper Products Co.
5800 Domine St., Detroit, Mich.
Hinde & Dauch Co., Sandusky, Ohio.
Simplex Paper Co., Adrian, Mich.

Parts for Europe

No. 1471 (Paris)—"We should like you to put us in contact with a manufacturer who will furnish 1,000 household refrigerators, quoting us a price f.o.b. Port Francais. We require quotations on both the complete refrigerators, and on component parts only."

Answer—To purchase American-made refrigeration units or parts, get in touch with Melchior, Armstrong, Dessau Co., 116 Broad St., New York, N. Y. This company specializes in the export of all kinds of refrigeration equipment to European firms.

Oil Separators for Multiple Systems

No. 1472 (Installer, New Jersey)—"Kindly advise me if there are any oil separators on the market that can be used on Zerozone refrigeration systems for separating or holding back the lubricant from the refrigerant returning to the cooling units used in apartment house systems.

Answer—Communicate with Riley Engineering Corp., 640 Beaubien St., Detroit, Mich.

Aluminum Ice Trays

No. 1473 (Distributor, San Francisco)—"Kindly forward to us the names of firms making aluminum ice trays. We believe there was a firm by the name of the Hoosier Co. or something like that which advertised in your magazine last year. We will appreciate the correct name of this firm."

Answer—You refer to the Hoosier Lamp & Stamping Co., 1511 Read St., Evansville, Ind. Other suppliers of ice trays are:

Aluminum Co. of America
2400 Oliver Bldg., Pittsburgh, Pa.
Fedders Mfg. Co.
57 Tonawanda St., Buffalo, N. Y.
Inland Mfg. Co., Dayton, Ohio.
Lima Sheet Metal Products Co.
Lima, Ohio.
McCord Radiator & Mfg. Co.
2857 E. Grand Blvd., Detroit, Mich.

Compressor Parts

No. 1474 (Distributor, Texas)—"Can you advise us where to buy compressor parts for Frigidaire and Copeland compressors outside of the original manufacturers?"

Answer—See Buyer's Guide column.

Grids for Bulk Ice Makers

No. 1475 (Manufacturer, Maryland)—"We believe that prohibition will bring with it a demand for larger cube ice makers, and we have had several inquiries involving grids for freezing cubes in our bulk ice makers using 25-lb. and 50-lb. cans. Can you advise us of a source of supply for this item?"

Answer — Communicate with the manufacturers listed in answer to Question 1473, above.

Wire Egg Racks

No. 1476 (Distributor, Hawaii)—"We are interested in purchasing wire attachments which would hold eggs or bottles in electric refrigerators. Can you direct us to manufacturers of such products?"

Answer—Try Peerless Wire Goods Co., Inc., Lafayette, Ind.; Union Steel Products Co., Albion, Mich.; or United Steel & Wire Co., Battle Creek, Mich.

TVA Appliances

No. 1477 (Manufacturer, Indiana)—"In the newspapers there was recently reported that the Tennessee Valley authority has met with a committee representing the National Electrical Manufacturers Association in regard to furnishing of electrical appliances to the Valley. So far, we have been unable to locate the proper parties with whom we should discuss the matter of electrical refrigeration. Do you have this information and could you advise us the headquarters of the proper authority dealing on this subject?"

Answer—See editorial in this issue.

"I have been reading copies of your splendid magazine in the offices of various customers, and I believe that it is indispensable to anyone connected with mechanical refrigeration."—A. C. Stepan, Jr., Chemical Distributors, Inc., Chicago.

"I have been reading your paper for about a year and get much helpful information from it."—Leonard Colson, Chicago.

"The issue of ELECTRIC REFRIGERATION NEWS for Oct. 18 is particularly interesting. The charts and tables showing the advertising expenditures of the several refrigerator manufacturers is enlightening.

"I want to compliment you and your associates on your splendid publication."—Fred I. McCandlish, West Barrington, R. I.

"Greetings!

"Check cheerfully attached for another year's subscription to ELECTRIC REFRIGERATION NEWS, 'the indispensable.'

"Many thanks to you for the oasis of knowledge throughout the past several years."—Cal Mitchell, Charlotte, N. C.

CLASSIFIED

PAYMENT in advance is required for advertising in this column.

RATES: Fifty words or less, one insertion $2.00, additional words four cents each. Three insertions $5.00, additional words ten cents each.

INDEPENDENT SERVICE COMPANIES

HALECTRIC Thermostat repair service, Ranco, B & B. Two dollars each, one year guarantee, prompt service. Halectric Laboratory. 1793 Lakeview Road, Cleveland, Ohio.

FRANCHISE WANTED

WANTED representation of a household refrigerator for Austria by leading firm in the business which already has workshops, display rooms and complete organization. Box 606.

MISCELLANEOUS

DISTRIBUTORS OR DEALERS WANTED: Large wholesale jobber handling all makes of repossessed electric refrigerators desires to make contact with distributors throughout the United States. Large profits; small investment. Good side line for servicemen and furniture stores. Your price $25 up, regular price $150. Goldfield's Wholesale Jobber, 1455 Main St., Bridgeport, Conn.

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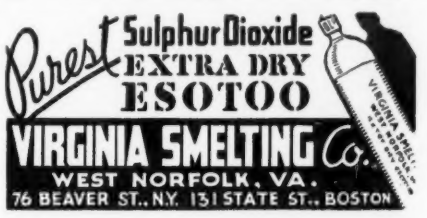
WEST NORFOLK, VA.
76 BEAVER ST., N.Y. 131 STATE ST., BOSTON



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